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The Use of Potash Salts in Germany.

Messrs. Editors American Farmer:

Your kindness in sending me uninterruptedly your very interesting paper, *THE AMERICAN FARMER*, induces me to send some account of our farming, and I prefer to speak especially about our experience in using German Potash Salts.

The basis of our farming is and always will be a rational connection of agriculture with keeping domestic animals. One half of the soil ought to bring forth produce salable at once; the other half ought to produce food for the animals. The products of the soil should give a rich food for a suitable number of domestic animals, and the animals should give stable manure nearly enough to restore to the land all of the food for plants taken away by the harvest.

We consider stable manure the most excellent and the cheapest; the most excellent, for it suits all kinds of soils, light and loamy land; it acts in dry and in wet seasons; it contains all kinds of elements plants are in need of; we think it is cheapest, provided the animal has paid for his food in part by giving milk, flesh, wool or labor. Besides this, we manage farms mostly so as to raise different plants in alternate succession; that is, deep-rooting plants change with shallow-rooting plants, leguminous plants come between graminaceous plants or roots.

Roots, either potatoes or beets, demand the greatest store of nutritious matter in the soil, but give a chance to stir and clean the ground perfectly; the legumes and clover plants collect nitric acid for the succeeding graminaceous plants. A farm managed in that way maintains itself without any addition of commercial manure; the dung deposited by the animals, the stubbles and the residues of plant roots and the dissolved minerals left within the soil, form new material for successive crops.

It is a disadvantage that nitric acid, that precious nourishment, sinks so fast into the subsoil, out of reach of plant roots (to prove this, be it mentioned that drainage water generally contains a large percentage of nitric acid); therefore, quite a sensation arose when it was discovered that the lupine plant (*lupinus luteus*, *angustifolius*, or *albus*) was able to collect and bring up all the nitric acid within the soil for the benefit of the following graminaceous plants. The lupine continues with us in high esteem as a collector of nitrogen. Yet, although a rural economy, combined with keeping domestic animals and raising in turn, deep and shallow rooting plants, legumes and grains alternately, may endure without any artificial manure, it never will come to the highest plane. The highest, the most intensive husbandry, is obliged to make use of commercial manures. Our large crowded population and high prices of arable land, compel the landholders to increase the products of the farm and consequently oblige them to provide for the nourishment of plants by mercantile manure. Most of our soils are poor in phosphates; others are poor in potash, and some soils, even rich enough in phos-

phates and potash, don't bring forth rich crops when there is a want of nitrogen, the agent (to use the words of Liebig) to solve and to set in activity the nutritious matter near by. There are other reasons to compel landholders to use mineral manures. The production of grain will hardly pay any more, since Russia overflows our country with rye, barley and oats, and America with wheat. It is therefore a necessity to produce better paying crops; for instance, oil, tobacco, hops, beets for sugar, potatoes for starch and alcohol; and plants of this kind, following at short intervals, afford more profit than a regular husbandry. They deprive the soil pretty soon of some necessary material, and as soon as one kind of plant food is deficient in the soil, the crops fall short—the crops always corresponding to that mysterious matter the soil is in want of.

For instance: to produce 2,000 pounds of clover hay, the soil on which it grows ought to hold available, besides other materials, thirty pounds of potash and ten pounds of phosphoric acid in a soluble state. Suppose within the soil there is at hand instead of ten pounds of phosphoric acid, only four pounds, then only 800 pounds of clover hay could be expected. Or, if instead of thirty pounds of potash only twenty pounds are at hand, no more than 1,380 pounds of clover hay could be expected, and the surplus of the other substances would appear a dead capital within the soil. However indispensable phosphoric acid is for all vegetation, and however scarce it seems in the soil, still it appears a dead loss, in case the soil is at the same time poor in other substances, especially in potash. Many soils, although rich in phosphates, are in want of potash, and consequently refuse to give a full crop. So it is lucky for agriculture, that the refuse salts at Strassfurt, Prussia, are so rich in potash, and that they exist in so large quantities, they will furnish the world for many coming years with potash. Now I see in your able journal, that the farmers of the United States make use of potash, and I am pleased to read, that Dr. Pollard, in his article of February 1st, recommends the use of German potash salts besides phosphates. I will try to set down a record of experience in using potash salts, as far as it is settled by our agricultural experiment stations. Peaty or swampy ground, after being freed from water, receives the most benefit by an application of potash salts, and the more so, when the moor is managed in Mr. Rimpau's *Own-reu* manner. (By the way, Mr. Rimpau treats swamp soils in the following manner: By running trenches parallel a distance of sixty feet apart, the swamp is freed from water; the material taken out of the trenches, when consisting of sand, is used to cover the moor all over, four inches deep. The sand is a dead body, only the bed for germinating seed, and is kept always above the moor, never mixing with it. Potash and phosphates are the only manure, never the stable dung; the moor itself is more than rich in nitrogen. Whenever there is no sand in the subsoil, or when sand is deeper than one and a half and two feet, the same is transported from other

places. The sand presses down and compacts the moor forever; the plants don't freeze out, as they often do on moors uncovered, and no weeds spring up. It is a costly melioration, but of wonderful success, especially when the covering sand contains lime.) This kind of melioration has demonstrated what an indispensable material potash becomes with a soil in want of it. Next to peaty soils the light sandy soil is most benefitted by applying potash salts. Both soils are as a rule very poor in potash. Soils on the contrary, consisting mostly of weather-beaten basalt or feldspar, are seldom in need of potash, unless potatoes, sugar beets or tobacco, raised uninterruptedly, have taken away the soluble potash within the soil. Even for more loamy land, our experiment stations assert, that potash salts are indispensable in consequence of their indirect influence. Experiments, for instance, have shown that by applying phosphates, 100 pounds of phosphates with fifty pounds of potash, had a better effect than 300 pounds of phosphates used alone. This fact shows that the potash salt not only acts as direct food for plants, but that its indirect influence, its solvent action on other substances, especially on phosphates, is of the greatest importance, sometimes more than as a direct food. This indirect influence appears again by applying potash salts either to potatoes and sugar beets, or to grains—barley, oats. The first-named roots are great consumers of potash; the last named grains want but little for food; still, the grains are generally, as experiments show, more benefitted by applying potash salts than the potash consumers, potatoes and beets.

There was a time when the potash salts were for beets and potatoes totally rejected. We had observed that, although the crops were increased, the beets had less sugar, the potatoes less starch than others raised without potash salts. Now we know that when kainit is used in proper connection with phosphoric acid and is incorporated in the soil long before planting or sowing, preferably in the fall, no such fault is observed.

An indirect gain by using potash salts is, that a soil manured with potash salts retains more moisture, which is very important for light, dry soils. Most all soils in want of potash are likewise in need of phosphates. Therefore, be it either as direct food or as solvent agent, it is advisable to apply both at once, say 100 pounds of phosphates to fifty pounds of kainit (sulphate of potash). One of them used alone has often no effect at all. Only the lupine plant is satisfied with kainit alone, without any other additional manure. Another condition in applying potash salt is, that the soil ought to contain lime or chalk. Many times the potash salts were without effect, when after marling or liming the soil success appeared at once. The eastern part of Switzerland, for instance, poor in lime does not derive any gain by applying potash salts; in the western part of Switzerland, a country rich in lime, the fields and meadows are very responsive to kainit. The German potash salts exist in different forms: carna-

lit, kainit, polyhalit, krugit, etc. In some of these forms potash is united with sulphuric acid; in others, with chlorine. The last named form, on account of its high percentage of chlorine, was feared would hurt vegetable life; later experiments showed that it is not the case, when chloride of potash is used some considerable time before sowing or planting; never was there any fault found using chloride of potash on light or peaty soil; in some cases even it had a better effect than sulphate of potash. Only one plant is very sensitive to chloride of potash, viz: tobacco. Manured with the chloride, it burns with difficulty, so that for tobacco sulphate of potash ought to be preferred. It appears to be almost the same thing in whatever form potash salt is used; the consideration is only as to the price and the percentage of pure potash in the salt. For importing long distances, potash salts of high percentage of potash ought to be preferred. Finally, it is considered profitable to strew potash salts in the stable for catching ammonia, but for that purpose krugit—potash and magnesia, united with sulphuric acid, is preferred; chloride of potash would corrode the feet of the animals and the shoes of the men. The rule to apply potash salt is to spread it long before sowing or planting, preferably in the fall; plow it under and mix it with the soil intimately. There is no fear about its sinking into the subsoil, washing away or evaporating.

Yours truly,

E. WENTG.

Schönlank, Prussia, March 11, 1884.

Grass Lands and their Management in France.

By our Correspondent in Paris, March 22.

It is not more than a century since France had only one kind of meadow—the natural, and only one way for rearing stock, pasturage in summer, and hay in winter. Thanks to the cultivation of artificial grasses and rotation of crops, the power of the land has been tripled. All abandoned lands become natural meadows, and will continue indefinitely so if not broken up. Artificial meadow is laid down for a fixed number of years—or one year even, and sown with selected seeds. A natural meadow demands less care, and exacts less capital than artificial grass land, but the produce will be less. Certain grasses would die out as the mineral matters they preferred became less, and other species would in due course succeed. In laying lands down to meadow not only the soil, but the climate should be studied. A moderate temperature and a fair dose of humidity are requisite for the success of meadows. Where these conditions do not exist, lucerne and sainfoin may succeed. As the condition of soil, climate and humidity vary, so will the grasses or flora; there are species suited for high, medium and low lands. For the higher, the grasses like a pure bracing air; aromatic plants will abound there, and so sheep and goats will thrive. For medium altitudes the land will be less dry, and the plants more abundant;

such pasturage is excellent for horses; while the third, if not marshy, will suit black cattle. In marshy land the yield will be good, but the quality deficient. The best meadows are situated in valleys, below the arable soils; they will thus enjoy the drainage of such land, thereby acquiring food and humidity. Of course land lying on the borders of rivers and liable to be inundated must remain under grass.

In meadow lands the aim is to extirpate grasses, keep land clean, irrigate at the right season, and carry off all super-abundant water. Ourcher says, that ordinary meadows contain 43 specimens of forage plants; of these 17 are useful, the remainder worthless or injurious. On elevated pasturages there are 38 species of grasses, of which only 8 are useful; in low meadows 25 species, and but 4 useful. From experiments made in Bretagne, it results, that in the case of natural meadows there would be on high lands three-fourths loss, and in low meadows six-sevenths, if cattle refuse to consume all the grasses that were useless and injurious.

For natural meadows, study the grasses peculiar to the locality. If the land be dirty break up and crop it for a few years, and then lay down, sowing after corn suitable seeds—not the sweepings of hay lofts; caution ought to be used respecting the introduction of new varieties, chiefly because they are new, though they may be natural. Endeavor to have grasses that will come into flower at the same time. Not a few farmers allow the cattle to feed down the aftermath of the first crop. It is better to allow the land to get firm. In winter long manure is spread on the grass and scattered by a light harrow in spring. Mow the first crop of grass before coming into flower; roll frequently, but never let sheep feed thereon for two seasons, or they will bite the heart out of the young clovers. And as natural meadows have not only different species of grasses, but these species come more or less forward as the season is wet or dry, select accordingly.

Pasture lands are generally those of rather a poor character, and not productive. However, in those districts celebrated for their grazing lands, as Normandy, Nivernais, and Hebaye in Belgium, the lands are frequently turned into pasture, not fields into cultivation. The rich pasturages serve for the fattening of cattle, as in the valley of the Aube and Colrados; others serve to keep cows and rear young stock, as in the north of France, the Vosges and the Jura; elsewhere, the pasturage is for horses and mules, as in Poitou, and the poorest lands support sheep, breed suiting locality. It is rarely wise to break up good pasture land giving fair returns; it is also a mistake to break up poor grass soils, unless the farmer be prepared to apply rich manurings.

Lands when grazed produce more, many think, than when mown. The plants tiller better. The first inch of a blade of grass grows more rapidly than the second, and the second more than the third. The several short regrowths will in the aggregate surpass the total length of that when mown.

Never feed bare a field; give it rest, and alternate the animals. Divide the pasture land into sections, and graze accordingly. Give stock to be fattened off the best bites, and do not torment them with such mixed company as horses and sheep. Indeed, the latter ought ever to be suspected, as they are very able in snatching up the tit-bits. For cart horses, they are better rested when fed in the stable on soiling. It is now the custom to spread cracked cake on the sward for fat stock; they pick it up with avidity, and it hastens them for the butcher.

A good pasturage ought not to be abused by being fed bare. It should be in harmony with the breed of cattle. The droppings or clots should be regularly spread out on the land. It is a good plan to only allow sheep

to succeed after cattle, they and horses will eat the tufts and fairy rings that cattle dislike. On no account let pigs or geese on paddocks, their natural home is a special piece of marsh land.

It is difficult to know to what country belongs the honor of discovering artificial meadows. Italy claims it from Camille Tarello, whose work appeared in 1506. Hartlib does not appear to have treated on the subject before the seventeenth century. In any case, it is only recently that the artificial meadow has been called into practical rotation use. Artificial meadows require good seed, good tilth, and well manured soil; they are generally sown in spring, with a cereal crop, but if rye grass, which grows so rapidly, it is better to sow alone, in autumn or after an early crop. The seed selected ought to be precocious, so as to come for the feeding or fattening of animals when the natural pasturage may be late. Artificial grass land is the base of all ameliorating and progressive agriculture. It is most profitable when the grass, cut twice daily to avoid fermentation, is given to stock in the house. Some farmers adopt the pen system, and in Normandy, in the districts of Caen and Caux, the peg and rope plan is adopted. A cord eleven feet long is divided into equal parts, passed through oblique holes in a board twenty inches long and four wide; one end of the cord is attached to the sunken peg, the other to the horn or neck. The rope is thus never entangled, nor the animals legs caught; a sweep two and an half feet or segment of sward is allowed. Thaeer alleges cattle give more milk when thus fed than if pastured at large or soiled.

For Italian rye grass obtain the best seed. Here it comes direct from Italy. The seeds are brushed in, covered to a good quarter of an inch, and rolled. When clover is employed, three or four varieties are selected, as it is rather a fickle plant. A bushel of clover seed weighs 64 lbs., and may contain from 16,000 to 54,000 seeds; a bushel of rye grass can vary from 15 to 30 lbs., and one ounce of seed contains from 15,000 to 27,000 grains.

Wool and Sheep Against Tobacco in Virginia.

The object of this paper is to call the attention of the farmers of the tobacco growing regions of Virginia, to the value and importance of sheep raising and wool as compared with tobacco.

There is no state in the union that is better adapted to sheep raising than Virginia, and no where else can they be raised so cheaply and so profitably. There are in Eastern Virginia vast quantities of open lands too much impoverished to be profitably cultivated, usually called old field lands, which can be purchased at from \$3 to \$5 an acre; sheep thrive upon these lands in the most wonderful manner. They are mostly elevated and dry, but abundantly supplied with water from creeks and branches. Sheep delight in a dry soil and a dry climate, and hence the great adaptation of such land to sheep husbandry. Sheep require very little feeding here, and I have known them to be subsisted the whole year round without any feeding whatever.

In order to show how well sheep pay here, the writer will take the liberty of giving an item in his own experience, and that of one of his neighbors. He commenced the last season with 33 old sheep. From these he raised 38 lambs and 160 pounds of wool. Putting the lambs at \$3 each and the wool at 35 cents per pound, we have the gross product of \$154. Deduct from this the cost of raising—say \$40, and \$114 is left as the net profit on 33 sheep. My neighbor has done even better than this. From 24 old sheep he raised 33 lambs and 120 pounds of wool, valued at \$120. Deduct

the cost of raising which he puts at \$25, leaves a net profit of \$104. My neighbor says that all the feeding he has given his sheep was a few ears of corn occasionally when the weather was bad, and yet his flock is in fine condition. These are not exceptional cases. It is the usual result with all who give their flocks proper attention, and do not allow them to become too large. It must be acknowledged that they do not do so well in large flocks. There is no doubt of the fact that wool may be made a great and most profitable industry in Virginia.

I will now proceed to show how much more profitable sheep are than tobacco. There are 43 counties in Virginia that raise tobacco, and the tobacco product may be estimated at 50,000,000 pounds. Putting the average value of this at 3 cents per pound, we have an aggregate value of \$4,000,000. The cost of production is estimated at 6 cents per pound, equal to \$3,000,000, leaving a net profit of \$1,000,000.

Now, take sheep. In these 43 tobacco counties there are about 61,774 farms; allowing the very moderate number of 25 sheep to be raised on each of these farms, we have an aggregate of 1,544,350 sheep; estimating the clip of each at 5 pounds, we have a wool product of 7,721,750 pounds, which, valued at 25 cents per pound, makes the aggregate value of the wool crop \$1,930,750. Add to this amount the value of the lambs raised (allowing 1 to each ewe), equal to 1,544,350 lambs, which at \$2.50 each make \$3,860,875. We have as the aggregate gross product of lambs and wool the sum of \$5,791,625. Deduct from this the cost of raising (yearly) say \$1 each, the sum of \$4,245,668 remains as the net profit, as against \$1,000,000 on the tobacco crop. Now the excellence of this result is that it can be reached without any or very little additional labor, whilst the planter can keep on making tobacco as usual, except that he should curtail his crop somewhat, which he ought to do any how, and make what he does cultivate better.

But the poor innocent sheep has two very formidable enemies which deter many from raising them. One is the dog, and the other is the sheep stealer. These obstacles, with a little care and attention, may be overcome in a great measure, by having the sheep at night in an enclosure as near the homestead as possible, and by putting bells on a few of the sheep.

This writer has been doing this for several years and he has not lost a single sheep from these causes as long as he kept it up strictly. Other advantages result from this practice. They are made and kept gentle, and the owner can see them every day, and thus readily discover when anything is the matter.

Notwithstanding these facts, not more than about one-third of the farmers in Eastern Virginia raise sheep at all. All could and should do it, for it would make a valuable addition to the income of the farm, whilst it would involve but little additional cost or labor.

Cumberland County, Va. WM. HOLMAN.

EXPORTATION OF CATTLE FROM THE ISLAND OF JERSEY.—Consular Agent Renouf reports to the State Department that there is a marked increase in the exportation of cattle for breeding purposes to the States, the total number exported during the year ending September 30, is 874, of the value of \$40,380, averaging nearly \$47 10a per head. In the number is included a prize cow of the invoice value of £1,000, thus raising the average to a high figure.

The breeders of this island are now fully aware of the necessity for a pure breed, with good milking qualities of their cattle for the United States, and they are most anxious that every precaution should be taken to insure the genuineness of the breed of their cattle when landed at the United States, and this shows the necessity of each animal being branded on the horn, and accompanied by a certificate duly attested, such certificate describing the animal and the number branded on the horn, together with the certificate of the veterinary surgeon of the soundness of the animal.

HOW TO PAY FOR A FARM.

Advice to Young Farmers in Debt.

(By the DEER CREEK FARMERS' CLUB.)

The Deer Creek Farmers' Club met at the residence of Mr. Wm. Webster, near Churchville, Saturday, April 5th, Mr. Thomas Lochary, President, in the chair, and Edward P. Moores Secretary. All the active members but one were present, and a number of guests.

The club in a body examined Mr. Webster's stock, etc., with critical eyes, the formal report being made by a committee, consisting of Messrs. Munnikhuyzen, Wm. F. Hays and B. Silver, Jr. Mr. Webster's Short Horn cattle, sheep, horses and Berkshire hogs looked well. He has a number of fine lambs, suggestive of green peas and mint sauce. Among his swine is one which rejoices in six feet, each fore-foot having an additional foot a little above it. It was not thought desirable to encourage six-footed hogs, as the four-footed variety are troublesome enough to turn out of a corn-field. It was suggested that they might be profitable for souse. Mr. Webster also has a great number of game chickens, which he thinks the hardest and best of all breeds. He gathers ten dozen eggs every day.

Mr. Webster said his stock cattle had not improved as they should have done and he thought he had made a mistake in his mode of feeding. They were kept up in box stalls at night and fed meal. In the day time they were turned out and fed on fodder in the field.

Mr. Munnikhuyzen suggested that cattle should not be stabled part of the time and turned out the remainder of the day. If fed out they should be kept out all the time.

Mr. Webster thought he had also made another mistake by not buying blooded cattle, which he thought paid better when fed in the stable than ordinary stock.

The question discussed was:

"PAYING ONE THIRD OF THE PURCHASE MONEY ON A FARM, IS IT POSSIBLE FOR A MAN TO PAY THE REMAINDER AND KEEP UP THE IMPROVEMENTS OUT OF THE PROFITS OF THE FARM?"

And our friend Baker, of the *Argis*, furnishes the following succinct report:

Wm. Webster said he was at first disposed to regard it as impossible, but upon thinking over the subject carefully, he concluded it could be done, and in looking around his neighborhood he found it had been done. It would require about twelve years in which to pay for the farm, and a man must use the same industry, economy and other business qualities which would be necessary to success in any other occupation.

Suppose a young man buys a farm of 100 acres, costing \$6,000, paying \$2,000 on it and leaving unpaid \$4,000. Of course it is taken for granted that such a farm has pretty good buildings and fencing and the land not poor. Let him divide it into five fields, of 16 acres each, leaving 20 acres in wood, garden, orchard, lawn, etc.

His expenses the first year would be as follows: Interest, \$240; fertilizers, a ton to 3 acres for corn, \$187; follow the corn with wheat, applying 300 lbs. bone and 300 lbs. phosphate per acre, \$187; wages and board of one man 9 months, \$216; additional help in harvesting crops, \$50; taxes and insurance, \$35; repairs, \$25; blacksmithing, \$20; seeds, \$40; personal expenses, \$200. He should take one religious, one agricultural and one county paper, costing say \$1, and pay his minister say \$12. Making altogether \$1,218.

He might reasonably expect to raise 9 barrels of corn to the acre, or 144 barrels, worth \$360; 18 bushels of wheat per acre, or 788 bushels, worth \$788; 6 cattle, worth \$120; hay, profits of orchard, poultry, butter, etc., \$200. In all \$968. He would then have increased his debt \$250.

The second year his expenses and receipts would be about the same as the first.

The third year there would be the addition of \$30 interest on the \$250 debt of the first and second years, making his expenses \$1,248. The proceeds of his farm could be increased by a hay crop of 2 tons to the acre, 20 tons, worth \$270—making a total of \$1,368, and the amount of receipts and expenses about even.

The fourth year his interest account would be \$240, and \$10 floating debt, which could be paid by the hay, \$270, and increase in cattle \$120, making \$390, thus leaving \$140 in favor of the farm, outside of the original debt.

The fifth year he owes interest, \$240. He has a balance of \$140 in hand; hay crop, \$270; increase in stock, \$250; total, \$655; leaving a balance in hand of \$415.

The sixth year he began to go over his fields again. The current expenses are the same as before, \$1,218. Against this he ought to raise 13 barrels of corn to the acre, \$520; 28 bushels of wheat per acre, \$448; 20 tons hay, \$270; cattle, 10 head, \$200; orchard, hogs, etc., \$250; stock and poultry, \$100; total, \$1,788. Net profits, \$570. This added to the balance on hand shows a balance of \$985 in favor of the farm.

The next year he ought to be able to make a payment of \$500 on the principal of his debt, and each succeeding year would diminish interest and principal, and at the end of 12 years his farm would be paid for and worth double its original cost.

Young farmers are inclined to think 12 years an eternity, but if they are industrious and manage properly they can pay for a farm under the circumstances named. Mr. Webster said of course he would expect his young farmer to have a good wife.

Mr. Edward H. Hall said Mr. Webster had not allowed enough for labor and personal expenses, and thought very few would succeed under such circumstances.

Mr. John Moores thought it could be done, but the man who undertook it must have muscle, industry and close application. He must live within his means and not ride around the county in a fine buggy. The feat has been done. He knew a man who, 28 years ago, worked at 50 cents a day, had no capital, but raised a family, bought a farm, and now has money on interest, and owns bank stock.

Benjamin Silver, Jr., said it was possible but not probable that the farm would be paid for. The young man would do better to invest \$3,000 elsewhere and work at something else. Mr. Webster's reasoning makes no allowance for wet days or bad crops.

Geo. E. Silver said that it had been done and could be done again, and while a majority of those who undertook a farm burdened with such a debt, might never pay the debt, they might improve the farm, live comfortably, raise a family and be better off, even if the farm were sold, than if the \$3,000 had been invested in something else.

Johns H. Janney did not believe more than one man in one hundred would succeed under such circumstances. He had also figured it out, but from a different standpoint. Take a farm of 150 acres, costing \$7,500. The cash payment would be \$2,500, leaving on mortgage \$5,000. The interest each year would be \$300; taxes, \$70.31; repairs, \$150; interest on cash payment, \$150; total, \$670.31. Ten dollars an acre would probably be a fair estimate of the receipts, which would amount to \$1,500, leaving \$829.69 to pay the cost of living, hire of hands, etc. A better way would be to rent the farm at say \$300 and invest the \$2,500. The account would then stand as follows: Interest on \$2,500, \$150; possible receipts of farm, \$1,500; total, \$1,650, leaving a balance of \$1,350 after paying the rent. The difference, therefore, in favor of renting, would be \$520.31.

Judge Watters thought it possible the farm

could be paid for, but it could not be figured out. It is said figures will not lie, but if you guess at the figures which form your premises, the conclusion is only a guess, after all. If a farmer invests all his money to pay on a farm he can't go on that farm and live like a capitalist, but he must be economical and work besides.

Mr. Cummings said Mr. Webster's figures show it can be done, by good judgment, economy and close attention. The best argument in its favor is that it has been done.

R. John Rogers regarded it as possible by the right kind of man. Twenty years ago there were people who could do it, and the advantages for farming are now superior. Improved implements now dispense with wages and board of labor. Two men can now do as much work on a farm as four men could 30 or 40 years ago. If a man makes up his mind to pay for his farm in 12 years he can do it. The advantage of buying over renting is that a man is not liable to be turned out year by year.

Silas B. Silver thought it could be done, but a man must save every cent possible. He must select his farm with care, and for \$6,000 ought to get a farm that will raise 13 barrels of corn to the acre. He should be prudent in stocking his farm, buying only such stock and implements as are absolutely needed. A small farmer, working with his hands, can get more out of them than a large farmer can.

Geo. J. Finney thought it did not often happen that a man gets out of debt, in a case as stated by Mr. Webster.

Alex. M. Fulford said it could be done, but it depended on the man himself. He must buy judiciously, watch his expenses closely, practice strict economy, close application and hard work to succeed. At the same time he might have raised a family and been as happy as most men. Farmers forget that they have a comparatively easy time. Few failures of farmers are reported in Bradstreet.

Thos. A. Hays also thought it possible but seldom probable that the farmer would pay out. Much would depend on his family. He would say to single young farmers who think they could not get along if married, to marry a rich girl or a working girl.

E. P. Moores thought a man could succeed, if he started with sufficient stock and good business ideas.

John G. Rouse said he had known farmers who were in debt who made their poultry and butter account pay their store bill. If he had \$2,000 he would rather put it in a farm and go in debt \$4,000 than put his money at interest and work by the day. A man's success would depend upon his energy and good management. It is a mistake for a man to pay all his money on a farm and go in debt for stock and implements. He would start at a disadvantage.

Wm. Munnikhuyzen said it was possible but not very probable. It depends on the man, as had been suggested. He would not advise a friend to try it, but would tell him to invest his money and allow it to accumulate until he could buy a farm. If he rented a farm he would do better.

J. Thomas Webster said that for a young man, raised a farmer and willing to work, it would be well for him to buy a farm. Backbone and muscle are required. It takes nerve to get up at 4 o'clock in the morning to attend to labor.

R. Harris Archer said success would depend upon the man and the farm. A good man on a good property might at least keep the interest down and improve the property. It would at any rate be a good investment if he did not succeed in paying for it.

Joshua Rutledge agreed with Mr. Archer that a young man who would work might be worth more even if sold out than when he started.

James Lee thought there was no doubt it could be done, but he differed with some

about it requiring all muscle. It would require management and head work also.

The President, Mr. Lochary, said he did not think there was ever a better chance than the present for a man to go in debt for a farm. Land is low and money can be had on easy terms. He thought a man could pay for a farm in 12 years. If a man goes in debt with the intention of paying, it makes him more industrious. A farm can be managed with fewer horses and men than it could years ago.

Richard Webster's opinion was that at the present prices of labor, and with corn at 50 cents and wheat at \$1 per bushel it cannot be done.

Wm. Webster remarked that farmers are afraid to feed the ground as it ought to be fed.

John Moores.—You are wrong there. We are afraid to do the work ourselves. One man and a boy can work 100 acres properly.

Adjourned to meet at the residence of S. B. and Geo. M. Silver, May 3d. The question announced for discussion was:

"Does the wool-growing interest of this county require protection from depredations of dogs?"

The Best Kind of Fertilizers and Proper Sized Farms.

An interesting meeting of the progressive agriculturists of the central part of Loudoun county, Virginia, was held on March 22d. For the proceedings we are indebted to the report of the Hamilton Telephone.

After the preliminary proceedings, including the election of Harry B. Wilson for Secretary, Thos. R. Smith was called upon for an answer to the following question, which had been submitted to him:

"WHAT FERTILIZERS ARE BEST FOR FARMERS TO USE AND HOW BEST APPLIED?"

He said: The product of the barnyard is the best fertilizer, and that it should be hauled out as fast as it accumulates. Next in order of their value I would use lime and bone.

I. E. Hoge: I agreed that it is best to haul manure right from the stable door to the field. I consider dissolved South Carolina Rock one of the best commercial fertilizers.

Lewis Helm: I would haul out well prepared manure as fast as made, but stalks, straw, etc., should be left in barnyard for about six months to be tramped and mixed. It is well to pile such materials up in the spring, and put some plaster in them and by fall they will be good manure. Dry, they are no better than brush. My wheat where S. C. rock was used last fall looks fully as well as where bone was used—equal commercial value was applied.

D. J. Hoge: The strength of manure left in the barnyard will waste away with every rain. It will rot in the field as well as in the yard and the strength will go into the soil. I don't care what you turn under, it all tells.

S. N. Brown: I would haul out rough stuff if it be only half rotted.

J. S. Wilson: Jas. M. Walker was doubtless correct when he said manure should be hauled out as soon as there is any to haul. Manure has two effects which should be considered; one the direct supply of plant food and the other the power to absorb the fertilizing elements of the atmosphere. I believe straw, boards, stones—anything is a good fertilizer.

J. M. Hoge: I believe the best wheat can be produced by bone and ammonia. Much barnyard manure makes a rank growth which will fall down.

J. T. Cummins: My best results have come from piling manure in flat ricks, and forking all over in about two weeks, after which it is soon ready for any use. Never had any benefit from coarse material.

T. E. Taylor: Chemical fertilizers will

benefit him (the renter for instance,) who wants quick results, but to benefit the land use bone or lime. As to long manure, anything that will shade will enrich the land.

Bush Piggott: We have used straw on corn ground and it did help the corn.

S. N. Brown: Years ago I put a belt of straw across a grass field soon after harvest. By first of September the grass was improved thereby and next spring I found double the amount of grass where the straw was put.

2d. QUESTION: "WHAT SIZED FARMS BEST PROMOTE THE INTERESTS OF THE COMMUNITY?"

Phineas J. Nichols, to whom the question was referred, said: Go near market and small farms are best. In grazing regions large farms are desirable; but in our community 200 acres is about as much as one man can profitably work. The general tendency of our farmers to increase their estates by buying adjoining lands that are put upon the market is to be deprecated. I have 215 acres and do not want more. With our present labor system I don't see what a man wants with a very large farm. With a farm of 200 acres I would divide in seven fields and that would give crop rotation of such extent that grass would not have to be turned up just as it gets good.

B. Piggott: If a man takes good care of 150 acres of cleared land he has about as much as he can attend to.

Jesse Hoge: I think Phineas is about half right. Farming should be done well. The yield of present crops should be doubled. When farms are large all the public affairs of the community—schools, shops, stores, etc., are scattered and made distant from the patrons. Beside I like to have my friends close to me, which would be impossible if farms were large. Large estates are not conducive to social intercourse by which the higher interests of the community are subserved and the ties of friendship strengthened.

Enoch Fenton: I agree that small farms are more neighborly, but I don't think I'll cut my farm in two to make a neighbor. The size of my farm is an advantage to some. I must give employment to labor. I don't think 200 acres enough. Where stock is a specialty 400 acres is nearer right.

H. R. Holmes: With a farm of 400 acres the proprietor can devote his time to manage and direct, hence do it better; and there is a class of men that need direction. Small farms make a community of laborers. But from 100 to 200 acres is about right.

Thos. R. Smith: Small farms are best for the community. This is demonstrated in Pennsylvania.

J. T. Cummins: I advocate small farms. I have 16 acres. Some times in the year I work 7 hands, and my expenses sometimes reach \$40 a day. I have more land than I can work well. [Mr. C. devotes his attention to fruit and vegetables.]

J. Ed. Smith: My 136 acres is not enough, but I would be satisfied with less than 200, which is about the right size for the general good of this community.

I. E. Hoge: For the good of the community I shall have to favor small farms, and 200 acres is a pretty size.

J. S. Wilson: Has a man like Vanderbilt a right to control \$100,000,000, while another works for 50c. a day? I question whether a man has a right to lord it over 400 acres and have those around him working for a pittance a day? Proof is abundant that small farms are best for the community. They promote the building of factories, schools, churches, etc.

T. E. Taylor: I believe that if we want higher development we must do something else than work. With 400 acres a man can afford to have an excellent outfit of horses, machinery, etc., and conduct his affairs as

that he may have some quiet time for social and intellectual improvement.

D. J. Hoge: I have a small farm, 150 acres, I could use more, and would like to be a horseback farmer, but small farms are best for the community and the individual. Would men advocate large farms if they had other good investments for surplus money? Put four farmers on the 400 acres and they would beat Enoch Fenton half way. My neighbor Taylor has 250 acres, yet for 18 years I have beat him raising wheat.

Jesse Hoge: I wish the women were here, for they are to be considered in the extra burdens of large farms which necessitate many laborers.

J. M. Hoge: Loudoun is a grazing and dairying county. If the farms were small they would have to be devoted to trucking, but where is the market for that kind of produce? A large farm can be run more economically. A man must have capital to run a farm!

Y. T. Brown: I most decidedly favor small farms. They promote the welfare of the community in every way, especially by forcing the investment of surplus capital in other industries, which greatly enhance the profits of agriculture.

J. H. Jewett: If farms were cut up they would produce double what they do and support twice as many people. I know a farm of 150 acres on which a meagre living was made by the owner, who finally died and the farm was divided into three parts. Each of the present prosperous owners employ one or two hands. We need not fear surplus of production. To illustrate this I will state that while we produce 10 million pounds of sugar we import 300 millions. I favor small farms.

The discussion having closed the following resolution was adopted:

Resolved, That it is the sense of this meeting that it would be best for this community to have its farms reduced in size rather than to be made larger.

Questions for next meeting.

"What can the agriculturists of Loudoun do that will best promote the real interests of the county?" Referred to J. H. Jewett.

"Ought we as farmers to encourage middle men?" Referred to H. D. Wilson.

"What is the most profitable manner for planting and cultivating corn?" Referred to D. J. Hoge.

Cultivation of Corn, Rye and Wheat.

Messrs. Editors American Farmer:

DEAR SIR:—In my last communication I stated that Garrison Forest Grange had determined at its first meeting in every month, (after the labors of the day were closed,) to throw open the doors to the public, to hear Mr. A or Mr. B. deliver a lecture on some subject which might prove interesting and instructive to all, and thus further the interest of the Grange in the education of the public.

Our committee who has the securing of lecturers for such occasions, had selected Mr. Wm. D. Brackenridge to deliver his lecture on "Fruits and Fruit Growing," but to the regret and disappointment of the large assemblage, he was unable to be present, owing to pressing business engagements. Consequently we had to do the talking among ourselves.

The question selected was—"which is the more profitable, the cultivation of corn, rye or wheat, taking the condition of the land after the crop is secured." Bro. J. T. C. said it was a question hard to discuss and one he would never had selected, for in this section of the country the farmers did not confine themselves to either one of the cereals mentioned, and the true merits of the question he had not considered, having been absent at the previous meeting, therefore was unacquainted with what question would be discussed.

Bro. A. C. said corn would be the crop he would select, for the reason that it was a more certain crop, easier cultivated and one that when ripe would wait on you and not spoil—whereas wheat or rye must be garnered when ripe or your labor would all be lost—and corn left the land in better condition for other crops, and brought quicker returns for the money invested.

Bro. M.—It was difficult to say which was the most profitable, and believed the farmers could not succeed by the cultivation of either one alone, but taking the average seasons was inclined to give corn the preference.

Bro. W. L.—would select corn as a more certain crop, and one which would, taking the seasons in consideration, give better results than either wheat or rye.

Bro. C. R. said figures would not lie, and gave a statement of expense attending wheat, corn and rye, (but the Secretary failed to secure them,) but gave the preference to rye.

Bro. J. C. gave the cost and receipts with the profits of cultivation of corn, wheat and rye for the year 1893, as follows:

Cost and receipts of one acre of corn.	
Dr.	
To Plowing.....	\$ 1 50
" Harrowing and marking.....	1 50
" Planting.....	1 00
" Harrowing five times.....	1 50
" Thinning, re-planting and suckering.....	1 50
" Fertilizer and application to hill.....	1 00
" Cutting, shocking and seed.....	1 62
" Interest on land.....	6 00
" Husking, 14 bbls. @ 20.....	2 80
" Hauling and lofting.....	4 00
Total cost of production.....	\$22 42

Cr.	
By 14 Bbls. @ \$3.00.....	\$42 00
Fodder.....	5 00
Profit.....	\$24 58

Cost of raising 15 acres of rye on corn stubble.

Dr.	
Dragging both ways.....	\$ 10 50
Drilling three days @ \$3.00.....	9 00
Agency's Favorite Fertilizer.....	24 75
Hauling to barn, 7 hands, 1 1/2 days.....	31 75
Threshing @ 8 cts. (372 bus.).....	29 75
Harvesting (before threshing).....	25 50
Hauling rye and straw to Baltimore.....	80 00
Interest on land.....	90 00
Seed.....	10 50
Total.....	\$231 75

Cr.	
372 bushels Rye.....	\$252 96
30,236 lbs Straw @ 50.....	235 35
Profit on 15 acres.....	\$236 55
Cost of 1 acre.....	\$15 78
Profit of ".....	15 71

Cost of raising 18 acres wheat on wheat stubble.

Dr.	
Plowing and harrowing.....	\$ 27 00
Rolling \$5.00, drilling \$9.00.....	14 00
2 1/2 bus. seed @ \$1.10.....	24 75
Harvesting (self-binder).....	16 00
Gathering and shocking.....	9 00
Agency's Favorite Fertilizer.....	74 25
Hauling to barn and packing.....	21 75
Threshing 540 bus @ 8 cts.....	43 20
Marketing to Baltimore.....	30 00
Interest on land.....	106 00
Total.....	\$367 75

Cr.	
By 540 bus. Wheat @ 1.10.....	\$594 00
Straw @ \$4.00 per acre.....	72 00
Total Profit.....	\$666 00

Profit per acre.....	\$16 53
Making a difference in favor of corn over rye.....	\$10 87
Difference of corn over wheat.....	8 02
" wheat over rye.....	2 85

Bro. I. B. stated as he was a renter, and relied entirely on his crops to pay the same, consequently kept an accurate account of his expenditures and receipts, and knew what his profits and losses were. Put 15 acres in corn and realized 7 bbls. to the acre (without fertilizer), a very poor crop; thinks if had used fertilizer would have realized 10 bbls. or more. The proceeds of the 15 acres was as follows:

Cr.	
105 bbls. of Corn @ \$3.00.....	\$315 00
Fodder and Husks @ \$7.00 per ton.....	105 00
Total.....	\$420 00

Dr.	
To Cost of Production.....	\$285 00
Profit on 15 acres.....	\$135 00
".....	9 00

Followed with rye with 300 lbs. phosphate to acre with the following result:

300 bushels of Rye, sold @ 80.....	\$120 00
10 tons Straw @ \$10 00.....	100 00
Total.....	\$220 00

Dr.
To phosphate, labor, threshing, etc.... 300 00
Total loss..... \$ 80 00
or \$5 33 per acre.

* Wheat.—He raised 22 1/2 bushels to acre at a profit of \$4.00 to the acre, making a difference in favor of corn of \$4.40 over wheat and \$14.33 over rye.

Bro. W. said a brother had stated figures would not lie, but there was a great discrepancy between those shown, and advised the brother when he next figured to get away from the piano, and suggested the propriety of shutting himself up in the barn. A vote was then taken, and it was decided that corn, taking all things in consideration, was the more profitable crop. Bro. W. said he thought it unfair that the brothers should monopolize all the talking, and suggested that a question be submitted which would cause the different sisters to give their views. Sister B. said it was always a pleasure to hear questions of interest discussed, but when she attempted to speak her heart went "pitty-pat" at such a rate she had to sit down.

Bro. W. said the sister's heart was in the right place.

It was suggested that a voluntary subscription be raised by the members of Garrison Forest Grange, the sum so raised to be equally divided, and prizes offered to the most meritorious boy or girl under — years, within a given radius, for such work as the Grange may determine adopted, and a committee appointed to select the most suitable object and report at next meeting. I think the object a good one, and hope other Granges will take it up, and a spirit of friendly rivalry be inaugurated throughout the County and State. The pruning knife has been used, and some of the useless wood of our Grange removed, and new and more vigorous growth started—one new member taking the fourth degree at our last meeting, and several applicants for our next.

Our genial friend and brother, Jas. Pentland, has consented to deliver a lecture here on "Growing Flowers and Adorning Country Homes," on Tuesday, May 6th, when I hope a large and appreciative audience will welcome him. I find that what I wanted to communicate has exceeded my expectations, and will in closing, suggest the using of the pruning knife, and that liberally wherever needed.

Yours truly, H. L. N.

Farming in Talbot County, Maryland.

The Easton (Md.) Ledger, a wide-awake and progressive paper, which ever has an eye open to the agricultural situation, and is on the alert to promote the local interests of the county where it is published, has lately addressed letters to a number of settlers in Talbot, who have resided there long enough to be able to form just opinions, asking them their views as to the profitability of farming in that section. The replies accord in praise of the soil, climate and other advantages of Talbot.

Isaac Hyner, who came from Ashtabula county, Ohio, eight years ago, says he pitched his tent on one of the poorest farms in Easton district, and adds:

"It was predicted by more than one man that I would fail as far as farming was concerned. I must admit that the first and second year I had a hard row to hoe, but pluck and perseverance will do a great deal."

Farming has been my principal occupation, and I will say here, that a man that can make farming a success in any country can do so here. I think the soil as susceptible here of high cultivation as any country. My farm pays me a good revenue on all I do for it. I think one great mistake with us all is we do not pay Mother Earth for what we get. It is a difficult matter for one to put a valuation on one acre of land properly tilled.

As far as my knowledge extends I should say Talbot county had improved fifty per cent. within the last eight years, and space to double in eight years to come. But take it all in all I think we have a country hard to beat."

A. B. Bert, who came five years ago from Northern Georgia, writes:

"He has found that the crops raised in Talbot county one year with another make a far better average than those raised in that section of Georgia as there are no drouths here as they have there, and the fruit crop is doubly sure in this section to what it is in that, as the fruit blossoms here seldom appear until the cold weather has passed, and such is not the case in that section as it is an exceptional year if a heavy frost does not come after the fruit trees are in bloom and kill the larger portion of the fruit."

When I first came to this county from the cheap and good lands of the South the high price at which the lands were held here surprised me and I thought of making my way back to where I came from, but after looking around and seeing the little waste land connected with almost every farm in the parts of the county that I visited, the productiveness of the soil, the accessibility to the markets of the large cities, the short distance the farmers have to haul their produce to cars or boats to have it shipped, its refined and cultivated society, showing every kindness and attention to strangers dwelling among them, make it a most desirable county to locate in, and taking the other many advantages the lands are not held too high but well worth what are asked for them. The health of this county is remarkable, I have not had a physician to visit my house, professionally, in the five years that I have lived here, there has been no sickness in my family or on the farm."

B. H. Brenaman says:

"The soil seems to be naturally very productive, easily cultivated and entirely clear of stone, which is very difficult in some sections of the North. The soil here is shallow, but clover, lime and corn-fed manure will make all the soil we want to grow anything that will grow anywhere else. The climate is more changeable here than in the North, at least I thought so this winter. It is not so extremely cold as in the North, but there are very chilly winds here. My family and I enjoy as good health as we did in the North, and we have good water, which is a great blessing."

J. W. Porter, eight years a resident of the county, having removed thither from Wisconsin, writes:

"Here we have every variety of soil, from a light sandy, to a stiff clay loam, and the most of it is capable of being brought up to a very high state of fertility. In regard to the profitability of farming here, I went to Wisconsin in '54, and I saw her in her best days, but I never saw as heavy crops of wheat grown there as I have here, right along year after year. 'But,' says the Western man, 'you use fertilizers, Yes we do. I have before me a market report from Portage, a city in central Wisconsin: Wheat, best, quoted February 22, 84 cents; same date quoted here, \$1.17. Their bill for freight on one bushel will fertilize for us two, allowing they get the same quantity per acre. From my own experience of more than twenty years in wheat growing at the West, I know they do not. In sheep raising we have the advantage of the West. Also our markets afford very much more remunerative prices for lambs than theirs. But in corn, I think they have the advantage of us. It costs but little to ship a bushel of corn when it is put into pork. The true system, in my judgment, is to combine agriculture with horticulture. Fruit raising can be made very profitable, I think, and this field is measurably all our own. Those broad and fertile prairies of the West and Northwest will not grow fruit successfully. It seems to me that if the farmers of Talbot would pay more attention to fruit it would very materially increase their profits. But the sun does not always shine, even in Talbot. She has her clouds as well; but I think the main objections to Maryland are such that they can, and I trust will, be soon remedied. While the disadvantages of the North and Northwest are so interwoven into her very existence they can never be removed. Her long, cold and dreary winters, with their piercing winds and deep snows, her devastating storms in summer, her blight and insect pests. All these combine to give Maryland a very decided advantage as a desirable place in which to locate."

J. L. Hand, having been two and a half years in Talbot, concludes he knows of no section where, in his opinion, "God has done as much to make a farmer's paradise as here on the Eastern Shore." He adds:

"It seems that in times past the people did not rightly appreciate their fair heritage, and neglected to keep up the original fertility of soil and improve their great natural advantages as they ought. But I trust and believe that the spirit of improvement is

now fairly aroused and will continue until every foot, of what is now waste land is made productive, and our branch land, by clearing and thorough drainage made to produce bountiful crops of grass, for which it is in general eminently adapted.

"As to the profits of farming here, I will say that I have been through something over two hundred counties of thirteen different States and know of no place where a moderate investment of capital, combined with intelligent farming will produce better results than here. One great advantage here is in the climate, we have at least two months longer season to grow our crops in, than the section I came from (Northern Ohio) and two months less to feed stock. At no time is it as hot here as there in summer, and it is many degrees warmer here in winter.

"Talbot's facilities for shipping either by water or rail, are such as to enable farmers to dispose of their produce of all kinds at less expense than any other county in the United States, and when it is considered that we have New York, Brooklyn, Baltimore, Washington, Wilmington and Philadelphia, at our very door, it will be seen that it is an advantage of no small importance."

R. E. Farnsworth, who came from Genesee county, New York, to get a cheap home and escape the hard winters of that region, and who saw the county in June, covered with its golden wheat fields of which it may well feel proud, determined, he says, that Talbot county should be his future home. He says he came in the following December and bought the farm known by most people as the Clement Anderson farm, and on which he still resides. He adds:

"Having had the N. Y. chills, I think I am quite well initiated and feel as if it would take a harder shake than I have had yet to shake me loose from old Talbot county. As to the soil and productiveness I am well pleased, as it is easy to till and easy to improve, and in most cases is retentive of all improvements. There is poor land to be found in all States and all counties, but as far as my knowledge of Talbot county goes I think it is hard to equal, all things considered, and the time is not far distant before its wealth will be doubled and even tripled."

Some Points in Potato Raising.

I do not think it advisable to say, that soil or this soil is best for Potatoes. What is the best soil in one locality is not the best in another. It is generally said that the soil best adapted to Potatoes is a sandy loam. In my locality such a soil is best for early Potatoes, but the summer drought makes it too dry for late Potatoes. I missed a good crop of late Potatoes for a couple of years on account of drought, and in response to an inquiry an Ohio market gardener, who was very successful in raising Potatoes, wrote me to plant them on a soil containing a fair percentage of clay. I did so, and raised good Potatoes. In most localities a light sandy loam is best for early Potatoes, because it dries and heats earlier in the spring and is always friable, and the August drought does not catch the early Potatoes.

In my opinion the day for raising early Potatoes on land not under-drained, is past. It is always the first Potatoes in the market that bring the big prices, and if you do not under-drain the land you will rarely be first now-a-days. Draining gives you a great advantage, as the ground is fit for the Potatoes much earlier in the spring, and there is

less danger of frost after planting. I am inclined to think that mulching would remedy drought on sandy land, judging from the experience of others.

The soil has something to do with the quality of the Potato. On heavy, wet soils the tubers are apt to be watery and insipid; on a light, sandy soil they are more mealy. A rich new soil yields Potatoes of better flavor than an old soil. But the man who raises Potatoes for market is not apt to care for the flavor. Buyers purchase from the appearance of the outside.

I think so much of ashes as a fertilizer for the orchard that I rarely have any for the Potatoes; but unleached ashes are a splendid fertilizer for Potatoes. I have seen good results always from the application of lime to soils not rich in it. The same is true of bone-dust. Southern Potato raisers have a good and convenient fertilizer—Cotton-seed meal. Fresh barn-yard manures are apt to make a large growth of tops at the expense of the tubers; but I have raised number one crops of early Potatoes on a lot upon which cattle had been fed for several years.

One advantage of a sandy soil is that it almost insures Potatoes of a smooth, good form. Such a soil never gets so hard as to distort the Potatoes. It is different with a heavy clay soil. This should be kept as loose as possible. Whether or not hard ground affects the size of the Potatoes, I am not prepared to say; but I have sometimes thought it did. Surely it would if it diminished the amount of available plant food.

I believe in hilling Potatoes, but I hill them downward; that is, I plant them deep. Potatoes must have a good depth of soil, and must either be planted deep or hilled. I consider deep planting preferable to hilling above-ground.

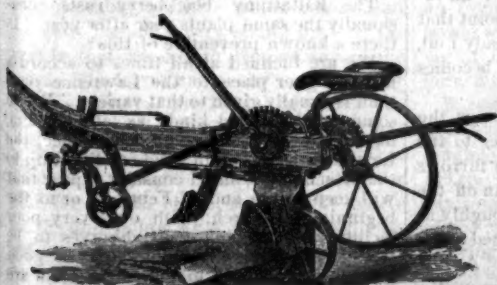
Deep planting requires a deep soil and deep cultivation. I believe that the soil for Potatoes should be stirred a foot deep—but never subsoiled. This brings us to another advantage of under-draining—it not only dries and loosens, but also deepens the soil.

I think it makes very little difference whether large or small Potatoes are used for seed, or whether the seed is cut or not. The tuber we plant is not a seed, but an enlargement of an underground stem. Hence, when we plant Potatoes we do not plant seeds, but *layer a stem*. The tuber is plant food, and the more plant food for the young plant the better. But you are not sure of giving it this by planting a large tuber, for more eyes will grow in a large than in a small one. However, I have had slightly the best results from planting large tubers, cutting them in only three or four pieces.—*Cor. Am. Garden.*

The farmer who employs two or more "hands" through the busy season, should hire at least one by the year. He can thus often secure the services of a really efficient man for many years in succession, to the benefit of both parties. The "hand" will take a greater interest in his work, the employer must see that it is to his advantage to induce his man to stay with him. Better work, better wages, and greater satisfaction all around! *Farm and Garden.*

The Little Giant Sulky Plow.

This implement combines, as is claimed by the makers, more points of merit than any other offered on the market, and deserves examination by all interested. Among other advantages are its direct draft, non-liability to upset, ease with which it can be backed without raising the plow out of the ground, and freedom from side-draft and pressure on the horses' necks. The plow is in front of the operator, and the construction is simple. The use of these plows is constantly extending, and the improvements which adapt them to hill sides and rolling



lands will make them more popular. Messrs. Joshua Thomas & Bro., 53 Light Street, Baltimore, are the Agents for the Little Giant.

Poultry Yard.

Good Management.

"There's much in management," said the old lady as she salted down her deceased husband's wig. "It may do for some one else." While we do not care to have our wives imitate the example of the old lady in "wig management," we prefer to have the faculty of good management in our better halves and ourselves put to a more practical use in the poultry yard.

To our view nothing looks worse than a lot of antiquated and decrepit cocks and hens dozing about one's premises. Old stock of any kind is useless, unprofitable, unattractive, and no knowing how soon they will leave us forever, for old age and infirmities are usually linked together. There is no sense or use about keeping old fowls; their days of usefulness have gone by, and their places should be filled by young and healthy birds that will be profitable, pleasurable, and ornamental at the same time.

We suggest at this time as the culling process of the young stock is going on, to weed out every fowl that is over two, or at most, three years old. Do not spare any over two except they are extra layers, or possess some transcendent or well defined quality that you wish to perpetuate in the offspring. Young hens are superior to old ones, their flesh is more tender and juicy, and alive or dressed for market they will always command a higher price.

After a hen has passed her third year, her laying capacity becomes diminished. As a general rule she is not as active as a younger fowl. Her appetite may be good, and her general appearance healthy, still she cannot bear the heat of summer or the excessive cold of winter like younger birds. Old hens moult later every year, thus diminishing the chances of getting eggs in cold weather, and increasing the chances of becoming victims to disease, for it is observable everywhere that cholera and other contagious diseases first select the old and infirm birds of the flock.—*Poultry Monthly.*

Ducks.

For the table every one is willing to admit the duck's excellence, though the want of cleanliness in its habits meet with everybody's reprobation. As a feeder it has few equals, while its feathers in the market stand high above those of the hen or turkey, and only second to those of its giant companion, the goose.

Ducks are easily hatched, and if properly managed they are easily raised—much more so than chickens or turkeys. Probably the worst thing for ducklings is the first they usually receive, and that is, unlimited range and water to swim in. The little things are, in a measure, nude, and should be kept in pens with dry soil floors or stone pavement that can be washed down daily. No kind of poultry will succeed on bare boards. All the water they need is best furnished by burying an old pot in the ground and laying a round piece of board on top of the water with room for the ducks to stick their heads in and fish out the corn that is put in the water. This amuses them and does no harm, while if allowed to go off to ponds or streams, they are very liable to fall a prey to vermin in some shape, or to get their bodies wet and chilled from remaining too long in the water.

Ducks are enormous eaters. They feed not only incessantly all day, but if it is moonlight they will up and at it again every hour or two before morning. We know of no statistics to show how many pounds of corn it requires to make a pound of duck, but we do know that ducks are rapid growers, and have but little doubt that if penned and judiciously fed enough to make the most rapid growth, they would return a handsome profit for the food consumed.—*Rural New Yorker.*

Lice and Parasites.

As we are nearing the time when we will look to our fowls for their best efforts in egg production and bringing forth their young, we should have a care now that they are kept free from lice and parasites lest we may be disappointed in our anticipations of great things to come.

Lice is not a very pleasing theme to dilate upon, but at the commencement of the season we wish to impress on the minds of beginners the necessity of eternal vigilance about the hen-house. The lice that have accumulated during the past summer in neglected quarters are now securely enconcealed in the cracks and crevices of the wood work, and require only heat to nurse them into active life. Now is a good time to destroy them, and not leave a vestige of seed to propagate their kind when genial spring comes around.

The cheapest and most effectual way of exterminating lice is a plentiful supply of whitewash put on hot. This material is cheap, always handy, and can be liberally applied everywhere in the henery. An ounce of carbolic acid to a pailful of whitewash will make it more effectual for killing these "hibernating pests" and their germs. In using let us remind you once more not to spare the brush or whitewash, but dash it into every crack and spread it over every spot in the hen-house. The fowls too carry their "living loads" about them, and you must provide them with the means to rid themselves. A dust bath is an excellent thing and furnishes a good remedy. By incorporating a handful of carbolic powder with a like quantity of sulphur with the earth, the dust bath is made most effectual. Insect powder blown among their feathers and the roosts saturated with kerosene, will make the vermin seek "pastures new."—*Amer. Poultry Journal.*

The Apiary.

Removing the Bees from Cellars.

Mrs. L. Harrison gives some good advice about this matter in the *Prairie Farmer*, from which we condense the following:

Good judgment and care must be exercised in removing bees from the cellar, or disastrous results will follow. We know of an apiary of over 100 colonies that was badly injured, indeed, nearly ruined, by all being taken from the cellar all at once on a fine, warm day. The bees all poured out of the hives for a play spell, like children from school, and having been confined so long together in one apartment, had acquired, in some measure, the same scent, and soon things were badly mixed, some colonies swarmed, others caught the fever, and piled up together in a huge mass. If a few hives are removed near the close of the day and put in different parts of the apiary, the danger from swarming out is avoided, for the bees will become quiet before morning, and being far apart will not mix up when they have their play spell. The success of bee-keeping depends upon the faithful performance of infinite little items. The hives should be higher at the back, inclining to the front; if the height of two bricks are at the back, one will answer for the front. This inclination to the front is an important matter; it facilitates the carrying out of dead bees and debris from the hive, the escape of moisture, etc.

WHAT we want now is a greater consumption of honey. Where one family uses it now we want ten; and where ten families use glucose now we want only one. When we can bring about such a state of affairs we will find a ready sale for our honey. I have been observing, for sometime, the consumption of glucose by the people in the shape of syrups. They come into the stores and buy it by the jug full, and by the five and ten gallons at a time; and seem to eat it with a relish, and claim they think it not unhealthy.

Horticulture.

The Orchard and Fruit Garden.

Planting done; all necessary pruning attended to; manuring, performed in a liberal manner; the next is the plowing of the land devoted to orchards (unless you grow orchards in grass), this should be done intelligently and carefully. The ground in the row, and immediately around the trees, can all be broken by using a one-horse plow, guided by careful hands, without injuring either roots or trunks of trees. Stirring the soil by using the drag, harrow, or cultivator whenever weeds make their appearance will prevent drying out and exhaustion of the land, and thereby insure better fruit and more of it.

Trees planted last fall and this spring will need attention as they begin to grow off; the tendency will be to throw out limbs lower down on the stems or trunks than is desirable, on all such should be rubbed off as fast as they appear, then the limbs forming, or already formed at the proper height, will get their full share of nourishment, and make growth more satisfactory.

The type-setter gave a good illustration of the "crookedness" in publishing houses when he "set up" the name of an apple I described in a recent issue of THE FARMER—for Cowan's seedling, the types said Cowan's seedling. Of course the error was pinned to me in kindly sarcasm by several correspondents. Now did I not know that I write such an extremely plain (!) hand, I should not feel so war-like toward the printer; but as there is so much work in the country now that is taxing our time to its utmost, open hostilities on that account must be indefinitely postponed.

The timely discovery of the influence of the pollen of hermaphrodite varieties of strawberries on those of pistillate "persuasion" will doubtless influence selections somewhat; if such kinds as the Crescent, the fruit of which is generally regarded as being too soft for distant shipment, can be solidified by fertilization of the bloom with varieties of established merit as to firmness, such as Wilson, James Vick, etc., the value to large growers of the former is greatly enhanced, because if firmness can be added to the strong points of excellence which the Crescent already possesses, viz: earliness and unsurpassed proficiency, I say, if with certainty, by the "new discovery" that can be accomplished, the discoverer is richly deserving of the "Star and Garter." I earnestly hope the readers of THE AMERICAN FARMER will make satisfactory tests of this new theory during the season and report them.

New York and Missouri seem to be trying which can produce the greatest number of new varieties of grapes, and just recently I notice that Texas is defiantly threatening to distance all competitors in the same race. I can only exclaim, "Go it R-u-b-e!!" With Catawba and Isabella as a basis, we have worried along with such kinds as Delaware, Concord, Martha, etc., until Rogers, of Massachusetts, with characteristic Yankee enterprise, inoculated the entire United States (and part of New Jersey) with a burning desire for better grapes and more of them. The fever quickly became epidemic, and even leaped the St. Lawrence and set to vigorous wagging the tail of the British lion. Ohio then made an abortive effort to divert attention from her Eastern sister; but I suppose became too soon stupefied by the recoil of heavily-charged wine cellars (or stomachs), and appealed to the genuine Rhine inheritance of Missouri. Ah! alas!! Missouri is so near to Chicago; for just about this time the jealousy of the Empire State is aroused, and a "free for all" is the result, in which none have actually killed but the three

States first named. I wish I did know exactly how far we have advanced in real merit and excellence beyond Delaware, Concord and Martha, but the trouble is I don't, and among those who do know, no two seem to know alike.

The Eastern Shore fruit growers have as yet no alarming symptoms of grape fever, but when you think of peaches please express your thoughts in the gentlest whisper, that is if you have any sympathy whatever for the well-being of the peach-fever stricken patients. The disease is hereditary here. In illustration of the severity of the "fever," it is only necessary for me to tell here what occurred at a prayer meeting in the upper part of this county a few years back. During the height of peach season, on a bright Sabbath morning, the congregation of a country church had assembled for prayer meeting previous to the regular service, and whilst a brother was pouring out a fervent appeal to his Creator, a listening brother was sufficiently affected thereby as to desire to emphasize the prayer with a sturdy Amen, and got it mixed and cried out, *Smock!*

Strawberries.

By B. PURYEAR, LL. D., Professor of Chemistry in Richmond College.

At the request of a number of persons, I will give in this number of THE AMERICAN FARMER my method of cultivating strawberries. I have nothing new to offer, but many persons are beginning this branch of horticulture, and others have been unsuccessful. For the benefit of such, and such only, this article is prepared.

I am by no means certain that the plan I pursue is the best possible, but after considerable experience and numerous experiments, I have found it better than any other for me, though it may not be best everywhere and under all circumstances.

A matter of prime importance is the preparation of the land. The land should be heavily manured and plowed in the early fall; and plowed again and again until winter sets in, to clean the ground of weeds, grass, etc. The cultivation of strawberries on foul land is very troublesome and vexatious. Hence heavy manuring, a deep plowing at first, to be followed by several shallow plowings to clean the land thoroughly, are pre-requisites of the highest importance that should be attended to in the fall before the runners are planted.

As the time of planting always in early spring, never in the fall. Why? No advantage is gained by planting in the fall, as we do not get a crop earlier by so doing. But there are two strong objections to it.

(1). Many of the plants, particularly if the winter be hard, will die. The roots have not gone down deep enough for protection against the extreme cold they are liable to encounter in winter. Then the replanting of the missing places costs perhaps as much labor as planting the whole patch on nicely plowed and thoroughly pulverized land.

(2). An additional working is necessary. All during the winter and early spring, grass is taking hold, and this must be scraped off in the spring as soon as the ground is sufficiently dry. This working, generally very troublesome, is avoided by planting in the spring. The planting should be done then in the spring and as soon as the ground gets in good order. The sooner now it is done the better, that the plants may have as long a time to root and grow as possible. March and April are the best months, but it may be done successfully in May.

The land should be re-fallowed, harrowed, and, if convenient, rolled, but the latter operation may be dispensed with without detriment, if you have not a roller. Plant by a garden line in rows four feet apart, and eighteen inches apart in the row. Take in

the hand about a dozen plants at a time, with their roots evenly together, and dip the roots in a loblolly of water and clay, and do this until you have fifty or a hundred plants ready. Plant with a garden trowel, very much as farmers plant tobacco, pressing the dirt closely about the roots and being particular to see that the crowns are not covered. Under favorable circumstances, less than 1 per cent. will die.

It will be inferred from the foregoing that we do not wait for a season to plant strawberries. It is better that the ground should be only in such order as is suitable for planting corn, potatoes, beans, etc. In two or three weeks replant in the few missing places, if any should be found.

The patch should be kept clean by hoes and shallow plowing until winter. Every one's common sense will suggest the best method of doing this, and hence no specific directions are given. At the last plowing, leave the land level. I accomplish this by throwing four furrows to the centre, using the small mould board, and then throwing down the dirt, some two weeks afterwards, by a cultivator. The ground is thus left for the winter smooth, level and clean.

Three points more must be mentioned before closing up the first year. (1). The blooms should be plucked off as they appear. The vital powers of the plant should not be weakened and wasted by fruit-bearing the first year. Each stool should become sturdy, strong, deep rooted, for an abundant crop the second year. It cannot do well two things at the same time. Surrender the first year therefore to the formation of good stools. (2). My own experience is that the best results are accomplished by keeping the stools separate. The fruit is larger and the process of mulching in the second year is more easily accomplished. (3). The runners, except two or three rooting very near the mother plant, should be pinched off as fast as they appear, otherwise the plants will mat the ground, the fruit will be small, and cultivation difficult. It is obvious that each stool receiving the benefit of the entire vitality of the plant will be larger and more vigorous, and bring a larger crop and larger berries.

Nothing more now is to be done until the spring opens. Then scrape off the grass and get the patch thoroughly clean; about the 10th or 15th of April mulch. For this purpose pine tops will answer very well. Nothing is better than wheat or oat straw cut up as for feeding. Mulching is done more rapidly and much more neatly and effectively in this way than by using long straw. Chaff is not good, because it contains so many seeds, which will put up just where they do most harm and the growth is most difficult to remove. Mulching accomplishes two objects. It keeps the fruit clean, and the soil moist and thus prolongs the period of bearing.

The next thing in order now is to gather the berries for the table or for market, and on this point the reader will not require explanation.

But as soon as bearing is over, it is of the highest importance that the patch receive prompt attention. There is now a strong tendency to neglect, which if indulged will shorten the next crop and increase the amount of work necessary even for an inferior yield. It is just at this point that failure comes in. The patch is already foul, and if neglected for a few weeks becomes unmanageable.

The fruit being gathered then, throw the dirt to the centre, not going nearer to the plants than twelve inches. Three furrows to the row will do this work—clean off the ridges left with the hoe as thoroughly as possible. When the vegetation turned under is fairly rotting, turn the dirt back. A little hoe work may be necessary to remove the grass and dress off the stools; you have now

to keep the land stirred and clean until winter, as recommended for the first year, keeping the stools separate by cutting off the runners and working between the stools with the hoe. Of course for other years, the same treatment will be pursued; but a strawberry patch should not be allowed to bear more than three years. Under the best treatment, it will become too foul and it is best to make a new patch.

A little well rotted stable manure when convenient, or when the land requires it, should be placed around each stool in March or April. Heavy manuring and deep plowing at the outset ought, however, to remove the necessity of further fertilization.

Of the many varieties of strawberries that solicit notice I have nothing to say, except to express my high satisfaction with the Manchester. The plant is uncommonly strong and vigorous, and is a heavy bearer of fruit that is beautiful, firm, rich and exquisite in flavor. The severe weather of last winter killed out my Wilsons badly; the Manchesters are altogether unharmed. This results from the fact that the plants are so vigorous and send their roots deep into the soil. There is, however, an objection to the Manchester, and it is the only objection, it is a pistillate variety. To bear well, a staminate or fecundating variety must be planted near by. A good plan is to have every fifth row planted with the Sharpless or Wilson variety.

Garden Notes.

Messrs. Editors American Farmer:

As the season for commencing gardening operations is again upon us, a retrospective glance, if only to the extent of the last season, may not be out of place. It not infrequently happens that as instructive a lesson may be learned from a failure as from a success, albeit the pleasure of displaying it to your readers may not be so great. We tried our root crop on the flat last season, and except for potatoes shall not repeat the experiment, as it reduced our crops fully twenty per cent., especially on Mangel Wurzel. This, however, may be only of local import, and if we had a genial sub-soil, or even a good depth of soil, the difference would not likely be so great; but we have to accept the conditions as they exist, and do the best we know under the circumstances.

We sowed a row of the short variety of carrots near the middle of August last season, and contrary to expectations, they came out splendidly—much cleaner and brighter for household purposes than those sown at the usual time. The latter part of June is the better time for the purpose, and we merely mention the incident above to show that a good crop may sometimes be made out of season.

We find that the cows eat parsnips equally as well as they do beets, and invariably increase the yield of milk while being fed on them; consequently we feel inclined to increase the area of the former, and reduce that of the latter for the coming season; but there being various points to consider, and having no especial data from which to draw a conclusion, it is quite possible, after all, to decide in error. Where is our Experiment Station?

The "Perfect Gem" squash has kept in good condition up to this date. Whilst we did not test it as a summer variety, we will continue it for further trial on account of its excellent keeping qualities.

The Kittatinny blackberry rusts occasionally the same plants year after year. Is there a known preventive of this?

We are inclined at all times to accord a much higher place to the Lawrence pear than is usually given to that variety. While some much lauded kinds, as late keepers, have gone to decay some time since, the Lawrence has kept in good condition up to the present time, and I consider a pear that will keep to the end of February or to the beginning of March, with only very poor facilities for keeping fruit, deserves to be well spoken of. It is moreover a good grower, less subject to the blight than are many other kinds, and a first-class bearer withal.

N. Y. Y.

That Grass Again.

I acknowledge that I owe Mr. Massey one on the grass subject. I have, however, tried the grass theory in a small pear orchard, and the grass does grow elegantly, too. It is now five years since it was sown to grass; a row of eleven trees of Bartlett's shows seven trees now—some entirely dead, others almost, etc., with blight. Next is a row of Beurre d'Anjou, with none blighted. These two rows are all that I ventured to torture with this high toned science in pear growing; but next to the Anjou row, is a row of Clapp's Favorite, which general experience proves to be quite subject to the disease. This row has been kept clean of all grass, as also, the rows that follow, of Seckel, Vicar, Lawrence, Osband's Summer, Sheldon, Winter, Nellis, Easter Beurre, Doyenne d'Ete, Beurre Gifford and Jargonelle, none of which have blighted, except the Jargonelle. The trees are more vigorous, larger, and I have had more fruit from one tree of Clapp's Favorite than off of all the Bartlett's and D'Anjous combined. But I see where I missed in the grass plan, now. The grass was kept mowed off only with an old-fashioned scythe, whereas, according to my friend's practice, I should have cut it more scientifically. Ah! ha! "A pony lawn mower," is it? I presume the pear trees have a high appreciation of such "tony" culture, but certainly the pony would have to be very small, or the operation would conflict with the other very scientific idea of low heads for orchard trees—d'ye see?

J. W. KERR.

Honeysuckles.

Thos. Meehan, in the *German Town Independent*, says: "Honeysuckles are old favorites in gardens, and many suppose there is nothing new to be said about them. But there are now more kinds known than there were a few years ago, and some of the newer sorts differ in many respects from the older ones. The Chinese and Japan sorts are probably the best known of all, with the addition of the Belgian. The two former flower at the same time in the spring. Both are desirable, and often planted together, on account of the contrast of color of the leaves and branches, the Chinese having red stems and leaves of the same tint, while the Japan is of a dark, shining green. The Japan is of a dense growth, and is more desirable of the two, when the object is to form a screen as well as to have bloom. Then, too, the Japan is very nearly evergreen, a great portion of the leaves keeping on until spring, especially when not too badly exposed to cutting winds. The Belgian is not a good one for climbing, but for rockwork, or covering an old stump, or similar purpose, where dense growth is not wanted, it is very well suited. It is one of the honeysuckles which has a honey scent to the flowers, and it blooms occasionally throughout the summer. But for a succession of flowers, there are none equal the newer one called Hallens, or Hall's honeysuckle. This does not commence to bloom so early as the others named, but then it flowers so profusely, and the blooms continue to come more or less all summer, that it is a sort which can not be done without, where flowers are an object. It is not alone its ever-blooming qualities which recommend it. It is besides a very strong grower, the best in that respect, in fact, of any of the sorts. The leaves are not of such a glossy green as those of the Japan, but they are very persistent in the winter time. It is a sort which pleases all who have it. There are other kinds of honeysuckles valuable in collections and for certain places, such as our native scarlet and yellow sorts, which are yet occasionally met in our woods hereabouts. It will be a long time before any time is found to supersede the honeysuckle for planting about our homes."

The Homes of Our Cultivated Plants.

An address delivered before the Maryland Horticultural Society, March 27th, 1881, by Wm. D. Brackenridge.

Mr. President, Ladies and Gentlemen:

During the earlier part of last year you have had read before you three admirable papers by distinguished members of our society; these papers treated in a very lucid manner the progress which horticulture had made in Baltimore and its vicinity, together with select lists of desirable plants, and the methods best adapted for their cultivation, all of which has been so well done that any further remarks we could make on the same subject might be deemed superfluous.

It has occurred to us that perhaps it might prove interesting to you to know something concerning the countries and habitates of such plants as now contribute so largely to our gratification. In doing this we shall avoid as much as possible the use of hard botanical names, as Schivereckia, Gueldenstatia, which sound rather barbaric in polite ears.

But botany as a science, let it be here understood, demands definite and universal terms in designating genera and species; these terms are in a great measure drawn or derived from the Latin and Greek languages, this will strike any reflecting mind as absolutely necessary; as local names would not suit, these differing when applied to a given plant in various localities and countries. As for example, the *Sarracenia purpurea*, is known in one section of the United States as Side-saddle flower, and in another as Huntsman's Cap or Indian Jug. *Viola tricolor* and its varieties is known in England and the United States as Heart's Ease, in France as Pansy, in Germany as Steifmutterchen, or Little Stepmother, and we could enumerate fifty other instances of a similar kind; such being the case, the necessity of a general and universal nomenclature cannot at the present day be avoided. But in our remarks we will use English names, in so far as they are known to us.

We have laid down no definite plan as to the country whose vegetable productions we shall first scan, but as that Island continent, Australia, is the most distant, and most anomalous in its animal and vegetable productions, we shall look at it first. Owing to the great heat and aridity of the soil under an almost cloudless sky, nature has provided plants with leaves capable of resisting the influence of such an atmosphere. In that portion of this land known as New South Wales many plants are furnished with needle shaped leaves, others again are provided with a close felt of down, or else so deeply divided that the rays of the sun pass through. Some again have the petiole so twisted that the edge of the leaf assumes a vertical position, and all are more or less leathery in their consistency.

Here is to be found in great variety those neat and graceful shrubby plants, that in by-gone days used to adorn our conservatories, as Hoveas, Chorozemias, Epacris, Boronias, Correas and numerous Acacias. But the most conspicuous hard-wooded plant which adorns the hill sides is the crimson flowered Warratah—*Telopia Speciosissima*, while an equal match to this is the gigantic Liliaceous plant, *Doriantus excelsa*, which sends up, from among its narrow leaves an erect flower stalk twenty to thirty feet high, bearing at its summit a bunch of crimson lily formed flowers.

Forests, where they do exist, are composed principally of Gum trees, *Eucalyptus*, belonging to the Myrtle family, of which about 400 species have been enumerated by botanists, some kinds of which attain to the height of 250 feet, while many varieties are found growing at elevations visited by frosts, such would be better suited for our latitude than the *Eucalyptus globulus*, that fever repelling tree lately introduced here, but found to be

too tender to withstand our rigorous winters. Other notable trees consist of the Morton Bay Pine, *Araucaria Cunninghamii*, and the Norfolk Island Pine, *Araucaria excelsa*, these are used in planting avenues and decorating public parks and lawns in and about Sidney. Another hoary, harsh set of Thistle looking shrubs are found inhabiting the sand hills near the coast known to botanists as *Dryandrias* and *Banksias*, the last named after Sir Joseph Banks, who accompanied the celebrated Captain Cook on one of his voyages as botanist.

Much has been said about the contrivances of certain plants from this country, such as Pears having the footstalk inserted at the blunt end, and a Cherry with the stone on the outside. Now, the first has no relationship whatever to our pear, but is only a dry, husky, inedible nut, while the tree belongs to the same family as the splendid Warratah already noticed. The reputed Cherry is related to the Yew tribe, and bears a scarlet berry of an acid taste, somewhat like our red currant, on the top of which the nut is partially sunk. The settlers make jelly of this fruit.

On the north and western side of this land stately Palms and Tree Ferns are found, together with many interesting Orchids; altogether about 10,000 plants and trees have already been enumerated as indigenous to Australia.

It may appear strange, but it is no less true, that a strong relationship exists between the vegetation of South Africa and Australia, the Proteas of the former taking the place of the Banksias of the latter, while the Heaths or Heathers are represented by *Epacris*, etc., etc.

The headquarters of the Aloe family is Africa, and from that land come also *Gladiolus*, *Sparaxis*, *Ixia*, *Watsonia*, *Amaryllis* and the brilliant *Tritonia*—vulgarily, by some, called the Poker plant. Here also is the home of the *Pelargonium*, commonly called Geranium, very numerous in species, appearing as shrubs, or sending up their flowers from underground tubers.

One of the most beautiful trees seen at Cape Town was *Protea argentea*, or *Silver Baum* of the Dutch; though found wild, it has been introduced in decorating the public parks and private gardens, and when the wind turns its silvery leaves they glance in the sun with a mercurial lustre.

Gardeners here and in Europe grow the Cape Heathers in peat and sand. In their native habitates they grow in loamy soil or in chinks and crevices of rocks, where water will not stagnate. In cultivation they should never be permitted to droop their heads for want of water.

We will now take a glimpse at some of the most interesting vegetable productions that adorn some of the fair islands which stud the surface of the Pacific ocean. On none of the many we visited—some of which were of coral, and others of volcanic formation—did we observe anything which might be considered very desirable in the way of flowering plants. 'Tis true, there are a few orchids of the *Dendrobium* type; and then there is a fragrant white tubular flowered Cape Jasmine-looking plant—perhaps a *Randia*? The *Hibiscus Rosa-sinensis* is cultivated by the natives, near their dwellings.

A great majority of such islands as are of volcanic origin, rise up into rugged peaks, the flanks of which melt down into rounded mountain ranges; these, with the valleys between, are richly clothed with hard-wooded trees, intermingled with Palms, wild Bananas and Tree Ferns, the undergrowth consisting principally of delicate Ferns, with a few inconspicuous flowering plants, while annual plants can scarcely be said to exist.

Along the coast where the majority of the native villages are located, there exist vast belts of bread-fruit, Orange, Banana, Guava and Coconut trees; these last prevail in

numbers, and we have never found them inland, or at an elevation over 100 feet above the line of tidewater mark, as they appear to delight in a calcareous, somewhat saline soil, the lack of which is perhaps the reason why no healthy specimens of this Palm are to be found in our conservatories. The Fiji group presented the richest and most varied productions of the vegetable kind; here were seen the Shaddock and a large bitter Orange, which was observed nowhere else; at this group the bread-fruits are of greater variety and of superior flavor. One of the Sago Palms, *Cycas Circinalis*, is plentiful, and a beautiful *Medinella*, with racemes of pinkish flowers, was perhaps the most desirable flowering plant observed.

The South Sea Islanders are passionately fond of flowers, particularly the Tabitians, where the females adorn their heads with a neat braid of Screw Pine *Pandanus* leaves, under which, on special occasions, they insert flowers of the *Hibiscus Rosa-sinensis*, and behind their ears a single flower of the long white Jasmine, while small flowers of various kinds are wreathed as armlets.

Providence has been lavish towards dwellers on these Oceanic Isles, in bestowing upon them food for their daily wants all the year round, for from the Friendly Islands in South Latitude to the Sandwich Islands in North Latitude, Bananas, Bread-fruit, Coconuts, Yams, Oranges, Lemons, Sweet Potatoes, Taro, *Caladium Esculentum*, forms the principal articles of food, supplemented by pig, chicken and fish, all of which are to be had in abundance, without a great expenditure of effort in procuring them.

The usual way in which cooking is performed is to dig a pit in the ground; in this a fire is kindled, and when thoroughly started, stones are thrown in; when these become red hot, the Bread-fruit, Yams, Taro, and the Pig or Chickens being cleaned and rolled up in Banana leaves are laid upon the hot stones, the whole is then covered up tightly with Banana leaves, grass and earth. The natives know exactly the time that the articles take to be properly done. By this mode of cooking everything that comes out is tender and delicious.

Their huts or houses are low, but neat, and of round or oblong form, the walls being constructed of Bamboo, or some light wood; this with the roof is covered with *Pandanus* leaves lapped over each other, or a thatch of wild Sugar Cane is used. The majority of these dwellings stand in a small yard, enclosed by a fence about three feet high, composed of the straight stems of *Cordalina* or *Dracena*; in these yards may be found growing *Hibiscus Rosa-sinensis*, *Crotons* and other sweet-scented plants, to flavor the Coconut oil, with which they anoint their bodies.

No section of the globe can surpass these Polynesian Isles in balminess of climate and fertility of soil for growing Sugar, Coffee, Rice, Arrow-root, Oranges, Lemons and Guavas. What is wanted is industry and capital, invested under the guarding care of some civilized government. And this recalls to our mind the progress in this direction that has been made at the Sandwich Islands, where the temperature is much lower than at any of the groups we have had under review; here the cultivation of coffee, sugar and silk is carried on extensively, mostly by foreign capital. And as it differs in having taken the lead in this respect, it also differs very much from all the others in its vegetation, whose affinity is more with that of Australia and South Africa, the home of Shrubby *Geraniums*, while on these sea-girt isles four handsome species were detected. With regard to such as are related to the Australian flora, they consist of simple leaved *Acacias* and the already-noticed Cherry, with the stone on the outside, together with a scarlet-flowered myrtle tree, *Metrosideros*, whose leaves assume so many phases, and whose flowers are

not always red, so that our acute botanist, Dr. Asa Gray, was puzzled to find out whether it constituted only one or many species; we find also here a *Lysionoma*, being sister to the Australian *Epacris*. A *Huckleberry* is found here in great abundance, inhabiting open plains, but frequently it was detected growing high up in the crotches of trees; its fruit is large, and pleasant to the taste. Here the Fern tribe is very numerous and handsome, and stands in number in relation to the flowering plants, about 45 to 160. One kind, the *Angiopteris erecta*, which has a short, thick, fleshy root stock, is used as an article of food, by the natives, while the woolly substance of various species of *Cibotiums*, which envelopes the young *Circinate* fronds, is used to stuff beds and pillow cases.

A considerable trade is maintained in the manufacture of Arrow-root, from the tuber of a plant called *Tacca pinnatifida*, which grows wild all over the plains and hill sides, the flavor of which is said to surpass the West Indian article. Here also a very considerable trade is carried on in Castor oil. No care is taken in the cultivation of the plant, as it springs up spontaneously in deep, rich ravines, the plants forming trees 20 to 30 feet high, and it is no unusual thing to see one or two natives up on one tree collecting the nuts.

Time will not permit us to tarry longer in descending on the physical features of those island gems of the Pacific, so we will cross over it and take a partial glance at a portion of the American continent, whose shores are laved by its waters.

From Peru we have had many plants to adorn our gardens, but from Chili we have had more. It was from this country that we procured our original *Portulacae*, *Calceolarias*, *Calandrinias* and the splendid *Lapageria rosea*, also various kinds of perennial *Tropeolums*, or Indian Cresses, as *Tropeolum tricolorum* and *T. Azurea*, with various kinds of *Alstramereas*. While that remarkable and grotesque Pine tree, *Araucaria imbricata*, towards the Straits of Magellan, adorns the flanks of the Andes, the nuts of which are large, and when roasted are very palatable, and are exposed for sale in Chilean markets. In the northern portion of this country the Cactus family is numerous, and here on the high cylindrical stems of a Cactus, *Cereus Chilensis*, a very beautiful scarlet flowering parasitical plant, *Loranthus Cacti*, has taken up its abode, and in order that this elegant plant might be introduced into our conservatories, it is only necessary to take up a Cactus carefully that has the parasite on it.

Opposite Chili, on the other side of the Andes, is the Argentine Republic, adjoining that of Buenos Ayres, drained by the Rio de la Plate and its tributaries, the Parana and Rio Uruguay. From this country we received our *Verbenas*, *Nierembergias*, *Petunias* and that charming climber, the *Manettia cordifolia*. Adjoining, and to the north of this, lies the vast Brazilian Empire, famous for its majestic forests and mighty rivers, teeming with animal and vegetable life. We wish not to be irreverent, but it appears to us as if the Creator of all things had selected this mighty empire whereon to exhibit his best creative power and ingenuity in all that is grand and beautiful. A marked feature in these forest scenes is, that the majority of the trees produce showy flowers, the prevailing colors being blue or yellow. Another remarkable feature is, that the numerous kinds are so mixed up that not more than two or three specimens of the same kind are found growing together, not being social, so to speak, as are our Oaks, Pines, Spruces and Chestnuts, and farther, the bark on their trunks is almost invariably smooth and destitute of that cortical covering peculiar to most of our trees, where it is found to vary from the eighth of an inch to one foot, the

latter thickness being found on Pine trees in Oregon.

Owing to the tangled and mixed character of these forests, not more than one-half of its trees are known to botanists; and the latter remark might well apply also to the numerous epiphytes and creepers which cluster on and ramble over their tops, consisting of *Tillandsias*, *Loranthus*, *Orchids*, and as creepers *Bignonias*, *Cissus*, *Aristolochias* and *Passion* flowers. In open glades and cleared spots a rank vegetation prevails, consisting of such plants as *Begonias*, *Fuchsias*, *Cupheas*, *Lantanas*, *Solanums* and *Velozias*, etc., etc. While in moist, rich places *Hedychiums*, *Cannas*, *Indian Shot*, *Heliconias* and *Bananas* are marked features in these woodland scenes. But the most imposing and gigantic herbaceous vegetable production of this, or any other country, is the *Fourcroya gigantea*, a twin brother to the American Aloe, partaking much of its habit of growth. Its broad spear shaped leaves are from six to ten feet long, strong and sharp pointed; from the centre of these is sent up a flower shaft or stem averaging in height from twenty-five to fifty feet, bearing at top a panicle of greenish white lily formed flowers, and these stems when divested of their flower branchlets reminds one very much of a small schooner's mast. These *Fourcroys* are planted close together in rows, as hedges, along the roads leading to the mines, so as to prevent mules returning loaded with silver and gold from getting lost in the jungles.

A view from some lofty peak of a Brazilian forest is worth remembering; the dense green, smooth at a distance to the eye as a Northern pasture field, is dotted by the yellow flowers of the Brazil-wood tree, or azure blue spots of various kinds of melatomas, intermingled with the gray hue of the broad leaved *Cecropias*.

Many trees of this country are valuable for their timber, nut-bearing qualities, or the gums which they afford; for be it known, the *Siphonia Elastica*, a lofty tree inhabiting the banks of the Amazon and its tributaries, affords the Caoutchouc, or Gum Elastic, of Para.

Brazil is rich in Ferns, both tree and herbaceous. Of Palms, about 120 kinds have already been described. Grasses are not numerous, but some of the few are of gigantic size. Just think of a Bamboo over 100 feet high; while of the fodder grasses, as *Panicum spectabile*, attain a height of six to eight feet.

(Conclusion in next number.)

YELLOWS IN PEACH TREES.

A Discussion of Remedies for the Disease.

My attention was some time since called to an article in the *Country Gentleman* referring to the recently published report of Professor D. P. Penhallow of New York, who had been employed by the State to make a scientific examination of the disease yellows in peach trees), and ascertain by experimental tests a remedy therefor. In answer to a letter of inquiry the writer received a copy of the report referred to, and also several later communications containing additional information as to the experiments made and remedies applied. From these it appears that the facts here treated have been "brought together after two years of constant labor in examining the various questions considered, Dr. Goessmann Amherst making the chemical investigation contained in the examination."

The theory adopted is that only the upper part or branches of the trees become diseased, the wood taken from a healthy one showing marked difference both in appearance and chemical analysis from that examined from a diseased tree, while the roots from the same trees showed no perceptible difference that could be ascertained from either a botanical or a chemical investigation. Hence the treat-

ment recommended is a plentiful supply of the food necessary for a healthy growth, and of the chemicals of which the affected trees show deficiency. The recommendations given after careful experiments both as to cultivation and the application of the necessary plant are:

- "1. Avoid the undue application of stable manures. If used have them well composted.
- "2. If the tree is already diseased trim back all branches showing symptoms of yellows, or on which premature fruit has grown.
- "3. Cultivate thoroughly.
- "4. Apply commercial fertilizers of the following mixtures:

Dissolved bone black.....	450 lbs.
Muriate of potash.....	150 "
Kieserite.....	25 "

The above to be applied to one acre of 100 trees and to be repeated each year to insure a healthy growth and freedom from disease. It is further recommended that where trees are known to be diseased an additional application of 2 to 3 pounds of muriate be applied to the base of such diseased trees in the fall. In a reply to a communication as to the nature or "Kieserite," Professor P. writes that it is the "crude sulphate of magnesia, costing about one half cent per pound, and is the least important constituent of the formula, it being added for the purpose of making a complete fertilizer, and also because of important chemical action in the soil where potash salts are an important factor."

Bone black is recommended because it contains no ammonia, phosphoric acid and potash being the only chemical ingredients necessary for peach tree fertilizers. It may be proper to add here that the dissolved South Carolina rock will furnish the same ingredient though in less quantity, 1,600 pounds of dissolved rock and 400 pounds of muriate of potash furnishing the same ingredients in about the same proportions as the formula above given, and the same quantities per acre if used in the proportions of five pounds of the latter to four pounds of the former.

In the communication above referred to Professor P. states that trees which had shown unmistakable symptoms of yellows, and on parts of which premature fruit had grown, have, after being treated in accordance with the above recommendations, "borne good, healthy fruit for three consecutive seasons, and as yet show no further signs of disease." In a latter communication he gives the result of experimental tests in the treatment of six young trees planted in April last. When the leaves came out the trees all proved diseased. They were treated for experimental tests as follows:

- "No. 1. No manure was used.
- "No. 2. Stable manure in the usual quantity.
- "No. 3. Dissolved bone black, kieserite and muriate of potash.
- "No. 4. Dissolved bone black, kieserite and nitrate of potash.
- "No. 5. Dissolved bone black, kieserite and nitrate of soda.
- "No. 6. Dissolved bone black, kieserite and sulphate of potash (kainit).

"Nos. 3, 4, 5 and 6 each received an application of three pounds per tree, mixed in the proportions given in the above formula, the application being divided and applied at different periods. They all showed the same condition at first, but in August the tree treated with muriate of potash had developed beautiful leaves and nice wood, while the others all showed the same badly diseased state. In September all the trees died except that treated with the muriate and that was looking at last accounts perfectly healthy."

Probably it would not be inappropriate to add in conclusion that the writer has for several years been experimenting with fertilizers composed of bone and muriate in proportions varying from 400 to 600 pounds of the latter to one ton of the mixture, and applied to the trees in quantities from 200 to 400 pounds per acre; and while the trees where

such applications have been made always made a more vigorous growth, been better bearers and longer lived, I have never yet known a tree once affected, or on which premature fruit had once shown itself that had not surely, though sometimes slowly and gradually, declined and died. It is proper to say, however, that only one-half the quantity recommended had been used and the different experiments cannot be judged by the comparisons here given, differing as they do so widely in the quantities applied, though about the same in the proportions of their chemical ingredients. It will be further observed that in the recommendations above cited an additional application of from two to three pounds of muriate per ton is to be applied in the fall, where the trees show symptoms of yellows, or where they have in parts borne premature fruit.—H. H. Appleton, in *Smyrna (Del.) Times*.

Messrs. Editors American Farmer:

The impressions which practical farmers receive from the reports of the scientific commissions are exceedingly important, though their publication is not so apt to occur. As Mr. A. is one of our most enterprising peach growers, we assume that the mere effect and control of the mischief referred to is all that he has gained from the two years' investigation of the experts; moreover, the means they suggest ruins the flavor of the fruit. The immortal Baron Liebig made the same blunder in assuming that muriate, (or native salt), of potash would regenerate the beet, and so it did—but ruined the sugar. He was not only a nobleman by appointment, but invariably acknowledged his mistakes. The fact so clearly ascertained that the *extremities* (or *weakest* part of the trees) are most subject to, and that the roots are exempt from, the mischief, most remarkably proves the value of the views and culture published in *THE AMERICAN FARMER*, on pages 18 and 30, also in *Prairie Farmer*, and other periodicals during several years.

The practical value of the views of this mischief there exhibited encourage, whereas the notion that like the attacks of insects the mischief is local and not general, (as ergotism is in fowls and other animals when they eat ergot), must discourage and render hopeless all attempts to remedy the yellows in the peach and the blight in the pear, which are the same, viz: the result of the mycelium or spawn of a fungus, which must be either deposited on the part which is most apt to succumb, or merely poison it through the circulation of sap from the roots or elsewhere—precisely as the poison of "poison oak" crops out on remote parts, and the skins of men shrivel with dry gangrene when they eat rye bread which is poisoned with a fungus called ergot.

The fact stated that the roots of the peach tree retain their normal condition, both chemically tested and physiologically, while all peach growers know that it is impossible to replant where a peach tree succumbs. This important fact, so well endorsed, seems to clinch the nail and forever shut the door against all empiricism, and clearly indicate the hygienic as the only rational system of treatment—discarding all nostrums and specifics, such as muriates, etc.

DAVID STEWART.

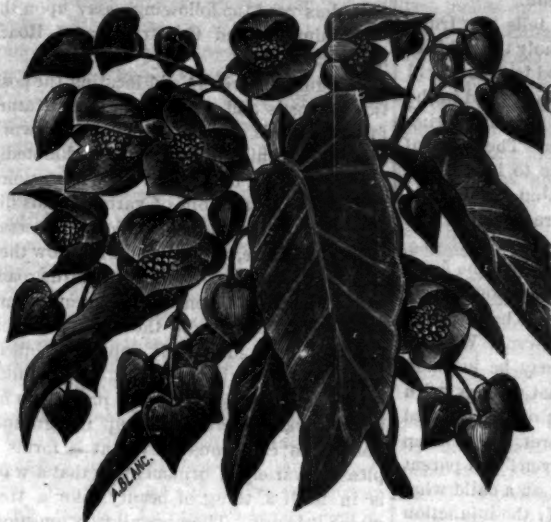
Port Penn, Del., April 5, 1884.

Plant Small Trees.

Mr. F. K. Phoenix says: "Small trees have larger roots in proportion; (2) they cost less; (3) expressage or freight is less—expressing small trees is usually cheaper than freighting large ones, and then so much more speedy; (4) less labor handling, digging holes, etc.; (5) less exposed to high winds, which loosen roots and kill many transplanted trees; (6) planters can form heads and train them to their own liking; (7) with good care in, say, five years, they will overtake the common larger sized trees. Without good care, better not plant any size."

A Good Window Plant—*Begonia Rubra*.

This plant is suited either for the window, the conservatory or the garden, its handsome foliage and wax-like flowers making it very attractive. A writer in the *American Garden* says of it:



B. rubra is certainly the most satisfactory one I have ever grown. My plant was a small one last spring, but it has flourished wonderfully since I obtained it. I potted it in a soil composed of turfy loam and some earth from a corner of the barn-yard fence, where the rains usually left a puddle of water standing, and the richness of the manure pile had soaked into it until it had absorbed the best elements of the heap. To this was added some sharp sand, enough to make the compost crumbly when taken up in the hand and squeezed together.

Along in June it sent up a new shoot from the roots, and it did not stop going up until it had reached a height of three feet and a half. Then it began to send out branches from each leaf, and these branches were covered with large, healthy, dark green leaves; so heavy is the mass of foliage on the plants, that I have had to put three sticks in the pot to support it. The plant almost fills an ordinary window, and it would be sure to attract a great deal of attention if it had no flowers. Add to the beauty of the leaves and its extremely graceful habit of growth, the large clusters of bright, crimson, scarlet flowers, which are produced so plentifully, in charming contrast with the foliage, and it is hard to find a more showy or desirable plant.

The Culture of Water Lilies.

There are several hardy varieties of water lilies which may be cultivated with little trouble and much pleasure. The common pond lily is a favorite flower, perhaps all the more desired because usually it is just beyond our reach from the edge of the water, and what we cannot get we often think the most of. But we can have as many as we wish, even when there is no pond around the house to grow them in. A pond is the best, and where there is one, or a quiet pool in the bend of a stream, water lilies may be grown in abundance. The bulbs, which can now be procured of seedsmen and some nurserymen, are packed in a ball of clay or mud and dropped into the water and quickly take root in the soft bottom. That is the end of it, excepting to gather the fragrant blossoms when they appear. Lilies are excellent plants for carp ponds, as these fish are vegetable feeders and get part of their living by grubbing in the mud for the smaller roots.

Where there is no natural pond small artificial ponds may be made by sinking barrels in the ground and half filling them with rich soil. The roots are planted in this and the barrels kept filled with water. These plants love the sun, and a southern exposure should be given to the tubs. The varieties that are hardy, and can be grown in ponds are the common pond lilies, red, blue, white and yellow. The tender kinds of *Nymphaeas* can also be grown if the tubs or tanks are safely covered up for several feet on each side so as to keep them safe from frost. The lotus India and China is hardy, but thrives better than covering in winter.—*N. Y. Times*.

Destruction of Insects.

Inquiry is made for the mode of using kerosene for destroying insects. A tablespoonful of oil may be mixed with a teacup of sour milk, and then diluted with two gallons of water. Apply the liquid with a syringe or watering can, and afterwards rinse with clear water. Another mode is to boil a quart of soft soap with two gallons of milk, and when cool add one gallon of kerosene. This mixture is used by diluting it with twenty times its bulk of water.

Vick's Mag.

PARIS green applied in solution, the same as for the Potato bug, will certainly end the black Squash and Pumpkin bug.

Abutilon—Boule de Nieve.



This is a popular plant, blooming all the year, and the best white of the Abutilons, or as they are popularly called, Flowering Maples. It can be planted out in summer, and during winter kept in a cool greenhouse, pit or window. The flowers are drooping and bell-shaped.

Hackensack and Jenny Lind Melons.

These two musk melons, or canteloupes, are a new and an old variety. The Hackensack



HACKENSACK.

sack is a popular New York market sort, somewhat resembling the Green Citron, on



JENNY LIND.

which, however, this is a decided improvement. The Jenny Lind is an older favorite. It is small in size, but of excellent flavor.

The American Farmer

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'AGRICOLAE.'" Virg.

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At the office of THE AMERICAN FARMER are located the offices of the following organizations, each of which its proprietor, Wm. B. Sands, is secretary:

Maryland Horticultural Society.
Maryland Dairymen's Association.
Maryland State Grange, P. of H.
Agricultural Society of Baltimore Co.

BALTIMORE, APRIL 15, 1884.

THE SENIOR EDITOR.—On the 10th instant the senior editor of THE AMERICAN FARMER completed his 84th year. His general health remains good, all his faculties unimpaired, his spirits unclouded and buoyant, and he continues his supervision of, and active participation in, the conduct of his old journal.

It may also be stated as a fact not without interest to his friends that this year is the semi-centennial anniversary of his first association with THE FARMER, he having become connected with it in 1834.

The April Horticultural Show

Will be held on Thursday evening, 24 inst., from 7 to 10 o'clock, at the Academy of Music, when a large and varied display is looked for. A feature of the occasion will be an exhibition of Orchids, (or air-plants), the cultivation of which has so greatly extended in this vicinity, all of our growers having agreed to contribute such as they may have in bloom. The proper management of this class of plants will be discussed at the meeting of the Society, which takes place at 8 o'clock.

Messrs. Herkness' Sale of Jersey Cattle.

The catalogue of this sale, which takes place at Herkness' Bazaar, Philadelphia, on Thursday and Friday, May 1st and 2d, includes nearly one hundred and fifty head. The cattle were selected by Mr. Edward Parsons Fowler, a veteran of fifty years' experience in the business, and whose importations embrace some of the most famous animals now in this country. A number of the yearling heifers have not been bred; many of the other females have been bred to superior bulls. The sale includes many fine specimens, and will be without reserve.

Death of Dr. Thomas Pollard. I

It is our melancholy duty to announce the death, on March 28th, at Orlando, Florida, whither he had gone in the hopes of restoring his somewhat impaired health, of Dr. Thomas Pollard, the associate editor of THE AMERICAN FARMER, and a man extensively known and universally esteemed, and one whose departure from the scene of his labors will cause regret among a wide circle of admirers and friends, who have been witnesses of his unceasing efforts for many years in the cause of agricultural improvement.

Dr. Pollard was born in the County of Hanover, Va., February, 1818. He was the son of Mr. Thomas Pollard, who for many years was clerk of the Circuit Court of Hanover, and acting clerk of the County Court. He was educated at Hampden-Sidney College, where he graduated in 1837. He chose medicine for his profession, in which he graduated in 1841. He then located in the lower end of Henrico county, and attained a large practice there. With the practice of medicine, he associated the cultivation of the soil, to which he was always much devoted. In 1850 he removed to Richmond city, where he prosecuted successfully the practice of his profession. In 1851 he traveled in Europe, examining especially the hospitals of Paris. In 1867, his health breaking down, he again went to Europe in the summer, 1868, but returned with his health not much improved. He then determined to give up his profession, and bought a farm near Richmond, Va., which he cultivated in conjunction with other lands near the city. In 1874 the Department of Agriculture, of Va., was created by the Legislature, and Dr. Pollard was appointed Commissioner of Agriculture by Gov. Kemper. The duties of this office he performed to the satisfaction of the farmers of Virginia, forming a cabinet of minerals of the State, and published numerous full reports of Agriculture. He was twice reappointed to this office by Gov. Holladay, and was removed from it by Gov. Cameron on his accession to power. In 1881 he became the associate editor of THE AMERICAN FARMER.

A Natural Fertiliser.

At a recent meeting of the Maryland Academy of Sciences, specimens were exhibited of disintegrated mica schist from Prince George's and Montgomery counties. An analysis of a specimen from the farm of Mr. Joseph Darby, near Laurel, made by Wm. Simon, Ph. D., showed it contained:

Phosphate of lime.....2.54
Sulphate of potash.....3.14
Sulphate of magnesia.....7.80
Carbonate of lime.....3.23
Oxide of iron and aluminum.....5.16

The residue being silica and insoluble silicates.

A general discussion of the subject ensued, and it was decided that these deposits contain—in immense quantities—a very valuable enricher of the soil, though it could not be transported to any great distance as a fertilizer.

Mr. Walters' Percheron Horses.

The very moderate charges for the service of these splendid animals ought to be availed of by those who are so situated that they can send their breeding mares to them. Mr. W. is actuated by a desire to improve the draft stock of this vicinity in keeping these stallions, and the charges are made exceedingly low.

Messrs. Tucker & Co.'s Importation of Jerseys.

It will be seen by the announcement that some of the heifers advertised by this house are of very superior and popular strains. The animals are now here in quarantine, and are offered at private sale.

Home Department.

The Poetry of House Cleaning.

The matter of fact side of house cleaning is absolutely threadbare from so much handling, and is sufficiently given to asserting itself at this season; therefore we may safely leave it in the hands of vigilant housewives while we endeavor to discover what there is of poetic justice to redeem it from absolute hardness.

It is the more fitting that we discover such redeeming features as lie in the background, because we are by the law of custom forced to forego the charms nature so profusely holds out to us at this time, in order to give our homes a clean bill of health, and ourselves the proud consciousness of having done our duty.

The measure of days and weeks and months by which it continuously and periodically returns to us is sufficiently suggestive of rhythmic chords to give it a semblance of poetic investment, and methinks if so minded we may find the embodiment there also.

The approved order of house cleaning is to begin in the garret, the interest in which has been improperly, I think, accredited exclusively to the younger scions of the household.

Fortunately we approach this altar upon which we are wont to offer all manner of things which are supposed to have rendered due service to their day and generation, ere we have reached the full tide of enthusiasm in the work before us. We therefore yield ourselves the more easily to the influence of awakened memories. These memories have grown tender with age like many of the material things upon which they are fastened; years and experience enabling us to look dispassionately upon circumstances which at the time they were shaped stirred us too deeply to admit the light of reason. Pain and pleasure are curiously intermingled in most recollections of the past, and the chaotic accumulations usually found in this initial chapter of house cleaning develop a corresponding turmoil of thought. Old friends, old facts and old fancies had each and all their part in the shaping of our present lives, and should therefore not be forgotten. These seemingly dumb things which we handle with so little care because they are no longer useful, will nevertheless tell their story and often create a deeper and truer repentance within us than the most eloquent speech from human lips. Anything which has had personal association with those who have passed beyond the dividing line between time and eternity, possesses peculiar power to awaken tender recollections, which we may ponder with profit; although we cannot possibly do what we may wish we had done, nor undo what we have reason to regret.

However, there is a brighter side to this ransacking of the garret. We may here for a time renew our youth and pass through the pleasantest experiences of the past, starting perchance from an old bonnet or parasol, which did duty upon the occasion; even a scrap in a patchwork quilt is sufficient to clothe us or our friends of long ago again in the fashions of the past, which we continue to hold as things of beauty. We may not linger however in these lofty regions beyond the allotted time, and therefore can only give each article its legitimate airing and cleaning with a loving touch for the bundle of letters containing a volume of sense and sentiment; dropping a tear over the apparel of one who has no longer use for it, and forestalling moth and mice in the care of our own possessions. No part of the house affords such perfect satisfaction as a well stored garret thoroughly overhauled and cleaned. The open windows down to the floor let in such a flood of sunshine through the blossoming trees

tops, and the breeze plays gently with the various things suspended from the roof and rafters; the clean white floor looks cleaner than floors elsewhere, while everything has the hush of completion about it. One would almost covet the fate of Rip Van Winkle, especially if wearied with the day's work, and swing a hammock in that fresh clean garret for an indefinite period of sleep.

We probably take such rest as we require before we descend to the more familiar portions of the house, and as we proceed from room to room we encounter besides the accumulations of winter's smoke and finger marks about us, and its dust beneath the carpets demanding the prosaic broom and scrubbing brush, also the suggestions of friends who have helped to make this cleaning necessary, whose stay with us has left so much that is pleasant to dwell upon that even at our busiest we are inditing pleasant things to communicate in our next letters; or else our thoughts and hands are shaping our renovations with a view to the coming of some dear ones of our household or from our circle of friends.

We are told in Scripture of the testimony of the "beams and timbers" about us; surely we may credit it when it is so easy to gather thoughts from inanimate things from one end of the house to the other.

Do we catch the poetry as we progress in our labors, or do we wait and find it in results? Certainly it is in the atmosphere about us. The birds give it voice, the budding and blossoming trees respond to its call; and the humming of the tireless bees complete the harmony. If we have not recognized it before, we take it in when the labor is completed, and we enjoy its fruits with a conscience void of offence towards all men, and the house thoroughly clean and in order, we may give ourselves over to the supreme enjoyment of nature at work, while we are waiting.

CERES.

The Fountains of Character.

"Carrie," said a lady of eighty-five summers to her daughter of fifty-eight, "I see there's a stitch dropped in that bit of lace at your throat; you had best mend it at once," and, seeing perhaps a note of interrogation in the eye of the listening guest, she added: "When I was a little girl, my mother brought out an old worn book from her private bureau drawer, and called me to look at it. It was a tiny volume of letters from a clergyman to his daughter, which had been given to my mother in her girlhood, and in one of the letters was this injunction: 'Whenever you find a break or a worn place in your clothing, mend it immediately.' I can see the yellow page now, stained and finger-marked, and just how those words in italics looked. Afterward, when I had so many children, I never saw a rent or hole in their clothing, but those italicized words would come up, 'mend it immediately!'"

That little old yellow book, so wisely used, helped the lady of eighty-five summers to keep her six boys whole upon a Methodist itinerant's very narrow income. Though often and almost always patched, they were never ragged, and the lessons of thrift and economy inculcated by their mother enabled them when grown to lift themselves and her above the need of patching and darning, though not above doing it.

"Don't use a whole sheet of paper for that memorandum; a slip will do," said a wealthy banker to his office boy; and after the boy had gone on his errand, the banker remarked: "The paper is nothing, the principle is everything. When I was a boy, we always had a work-bench and tools and more or less lumber to work with. 'Never cut into a big board,' my father would say, 'when a small piece will answer your purpose. Hunt round and find a small piece for small work, and save the large pieces for large work.'"

This principle carried out, enabled this banker, when reverses overtook him, to make \$5 do the work that \$25 is usually expected to do, and "get on his feet" again.

"The child that always tells the truth, obeys its parents and keeps holy the Sabbath day, is sure of everything good in this world and well-nigh sure of everything good in the world to come." This was a constant saying of a principal to his pupils. The love of truth, the habit of obedience to lawful authority, and reverence for God, these built into a child's character insure it for this life and for the life to come.

So we parents and teachers sit at the fountains of character and direct its courses for evil or for good. What need have we to draw from the fountains of eternal Wisdom in order that our teaching may be just and true; what need to listen that we may with the inner sense catch strains of that blessed harmony of the higher spheres, and so keep ourselves "in tune with heaven!" A parent cannot always be enjoining on a child what he does not practice himself; the injunction is a formula from his own life, and it is his life influences that the child, though later he may recall chiefly the formula, but he will recall it as embodying more or less the life of the parent.

Grandparents are generally much more lenient to the faults of children than parents are, and the reason is doubtless this: they have seen their own children outgrow so many faults and weaknesses and tendencies to vice, that they judging the future by the past think their grandchildren will do the same. "Don't say anything to grandma about Jimmie's faults," said a merry girl "she'll only say 'Have patience, and he'll outgrow them.'" The old lady smiled, and replied: "When I remember how I worried over your father's faults, and your Uncle Harry's, when they were little fellows, and see what strong, good men they have become, I have faith to believe that little Jimmie will make as good a man as they are. He's weak, and a little thing upsets him; like a young hickory sapling, he bends under a slight weight, but give him time, and he'll come up all right." "Yes," said the mother, "give him time, and with it 'line upon line, precept upon precept, here a little and there—a great deal, and I hope there will be developed within him forces that will lift him away from the sins that now beset him.'"

Into well prepared soil we put the seed and leave it in darkness to the vital force within the force surrounding it. We do not keep ploughing it up to see if it is sprouting, but having planted and watered it, we must trust that God will give the increase. Even when tares appear, remembering the Saviour's injunction, we let both grow together till the harvest, lest in uprooting the tares we uproot the wheat also. There are certain faults inherent in certain characters, which require allowance and toleration, or the whole character is spoiled. We cannot make willows of oak or apple trees of vines. It is the nature of oaks to become gnarled, and of vines to cling. We accept Carlyle for what he was, and rejoice in him all we can; we accept Emerson for what he was and rejoice in him.

Vices in our children we must prune away, as we kill canker worms, and while ploughing the corn kill the weeds. Harvest comes all the way along from May to October, from youth to age, but only when the last crops have been gathered do we celebrate Thanksgiving Day. The "blossom storm" scatters the spring glory of the fruit trees, and the tiny "sets" must have weeks and months to swell and color and ripen. The hot suns of July and August must pour fervid rays upon them, and often not till frost touches them are they ripe. So, while we do all that loving hands can do for these children dearer than life to us, and all that loving hearts can conceive to bring them into proper relations to their fellows, themselves and their God, we must wait for the ripening, sure that in due time it will come, perhaps when to our children we have become only a precious memory.

Walks and Roads.

At the last meeting of the District of Columbia Horticultural Society, Mr. William Saunders read the following essay upon the "Introduction and Construction of Roads and Walks."

The guiding principle in locating the position of roads and walks is utility. Nature forms no roads or paths; they are the work of men and animals, and would undoubtedly always proceed in straight lines from point to point if obstructions of various kinds did not interfere and cause deviations. Necessity will, therefore, suggest where and how they should be introduced. So far as regards roads and walks to and from buildings or prominent points of interest, the object of their introduction is sufficiently apparent; but in arranging or laying out pleasure grounds and lawns, it is too common a practice to introduce walks merely to fill up the ground, under the erroneous idea that it forms a pleasing variety of ornament, or that a walk is in itself a thing of beauty, like a tree, which it is not. These are all very questionable reasons for doing a very absurd thing, that is making a walk where it is not needed. A road or walk should always appear to aim for some definite object, or lead as directly as practicable to points of sufficient importance to show their utility.

UNNECESSARY ROADS AND WALKS

should be carefully avoided; they are expensive, usually, in their construction, if properly made, and require to be kept clean and neat. Nothing looks more woe-be-gone and poverty-stricken than a weedy, neglected road to a house, or walks through pleasure grounds or gardens. They detract much from the beauty of the surroundings, no matter how elaborate or intrinsically worthy they may be. An over supply of roads and walks is always a serious affliction, and their useless introduction is a sure evidence of the work of a novice in landscape gardening. The endeavor to introduce the beauty of curved lines sometimes prompts to a deviation from the more available direct course, and, where it can be done without too great a sacrifice of utility, it is not objectionable, but, on the contrary, adds to the good effect. But no walk or road should be turned from its obvious direct course without an apparently sufficient reason. A change of level of ground surface, a tree, or a group of plants, or other similar obstruction, will induce, and seemingly demand, a change of line.

There are many locations where the straight line should be preferred as a matter of taste in design. As a connecting link, or as defining a point between the strictly architectural lines of a building and the irregular surfaces and outlines of natural objects contiguous to it, a perfectly straight walk is in the best taste, and adds greatly to architectural effect; while, on the other hand, a serpentine or frequently curving walk, following, it may be, all the projecting and receding lines of the ground plan of the building, detracts from both solidity and harmony of effects. So also a walk alongside of a straight boundary fence, especially in limited areas where both the fence and walk are visible at the same time, should not curve until it at least defects into a course directed from the boundary line; and yet we may occasionally notice a zigzag walk under these circumstances, and so decidedly crooked that one steps first on zig and then on zag in the attempt to walk over the pathway.

Most persons are aware of

THE GREAT BEAUTY OF STRAIGHT WALKS, and avenues of trees when properly placed, and for public parks of the lesser order, such as in small squares in cities, they are both effective and convenient, where curving walks would be the reverse. In this case beauty depends upon harmony rather than upon contrast, and more than either upon utility. When roads or walks are carried

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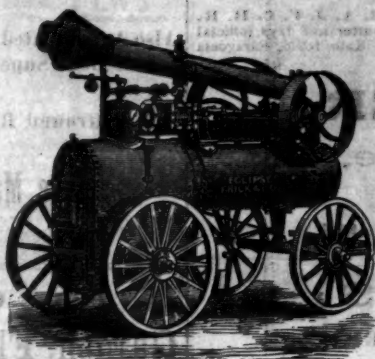
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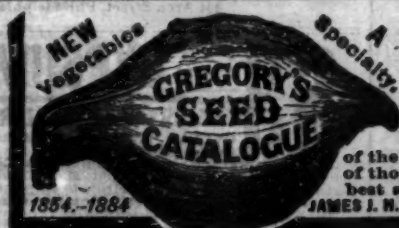
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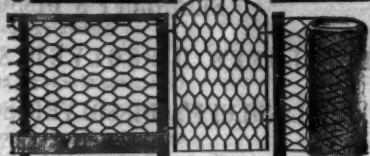
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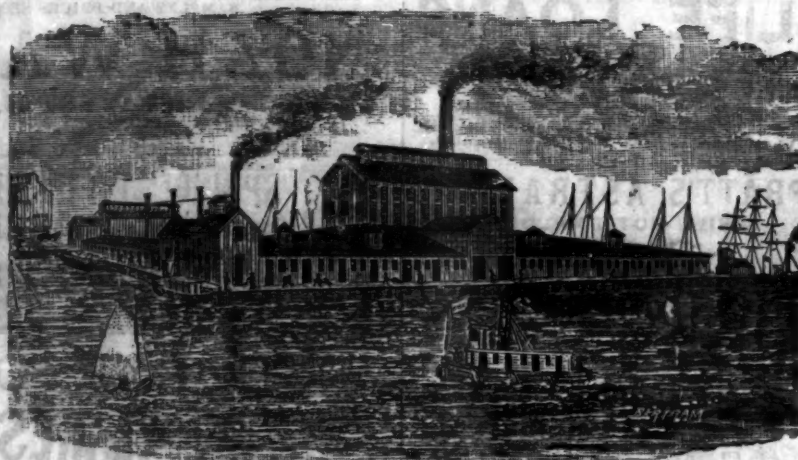
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